EFFECT OF GUIDED IMAGERY ON SOCIAL ANXIETY AMONG ADOLESCENTS AT A SELECTED SCHOOL, COIMBATORE.

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The Tamilnadu Dr. M.G.R Medical University,

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In Partial Fulfillment of the Requirement for the

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This is to certify that the dissertation entitled **"Effect of Guided Imagery on social anxiety among adolescents at a selected school, Coimbatore"** is a bonafide work done by **Revathi. M, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences** in partial fulfillment of the University rules and regulations for award of **M.Sc. Nursing Degree** under my guidance and supervision during the academic year **2016.**

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Abstract

The developmental phenomenon during adolescence brings a number of changes in the physical, hormonal and social condition along with increased anxiety. The main aim of the study was to assess the effect of guided imagery on social anxiety among adolescents. The research design in this study was one group pretest posttest, pre experimental design. Using proportionate stratified random sampling, a total of 60 adolescents were selected from 6^{th}, 7^{th} and 8^{th} standards (20 each). Social Anxiety was measured by a structured questionnaire before the intervention. Following that, Guided Imagery was administered for 15-20 minutes, three times a week for 4 consecutive weeks. At the end of the fourth week posttest was done to assess the level of Social Anxiety using the same questionnaire. The mean scores of the level of social anxiety before and after Guided Imagery was 34.6 and 5.2 with a standard deviation of 5.70 and 2.74 respectively. The mean difference of pre and posttest scores was 29.4. Paired‘t’ test was used to find out the effect of guided imagery on social anxiety among adolescent. The calculated ‘t’ value (37.64) was greater than the table value, at 0.001 level of significance. Hence it was concluded that, Guided Imagery was found effective in reducing Social Anxiety among adolescents in this study.

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INTRODUCTION

Adolescence is a period of transition from childhood to adulthood. It is characterized by rapid physical, biological and hormonal changes resulting in psychosocial, behavioral and sexual maturation between the ages of 10 to 19 years in an individual. Adolescence is often described as a phase of life that begins in biology and ends in society. It means that physical and biological changes are universal and take place due to maturation, but the psychosocial and behavioral manifestations are determined by the meaning given to these changes within a cultural system. The experience of adolescents during teen years would vary considerably according to the cultural and social values of the network of social identities they grow in. Adolescents with social anxiety often live with the problem through adulthood without ever being diagnosed. Although social anxiety is the third most common psychological problem, many parents and teachers are not familiar with the signs and symptoms in children and adolescents. (United Nations Children's Fund, 2013).

Social anxiety involves an intense fear or phobia of social and performance situations. Although most adolescents go through periods of normal anxiety related to the changes that go along with adolescence, those with social anxiety experience fear that is out of proportion to the situations that they face. For some adolescents, social anxiety becomes chronic affecting school performance, extracurricular activities and the ability to make friends. (Thomas & Richard, 2015).

Social anxiety is actually a type of performance anxiety**.** It is a feeling that an individual might face a situation where performance really counts, or when there is a pressure to do well. For example, a person might experience performance anxiety when he or she is about to try out for the school play, sing a solo song on stage, step onto the platform in a diving meet, or to attend for an important interview. (Culler & Hollaha, 1980).

Anxiety causes physical effects like palpitations, muscle weakness, tension, fatigue, nausea, chest pain, shortness of breath, stomach ache or headaches. The external signs of anxiety are pale skin, sweating, trembling, and papillary dilatation. (Kavitha & Sasikala, 2011).

The individual with anxiety might also experience it as a sense of dread or panic. Experiencing a panic attack will often feel as if the person is about to die or pass away. Anxiety also has some emotional effects over the individual who experiences it. The emotional effects include feeling of apprehension, trouble concentrating, feeling tense, and anticipating the worst, irritability, restlessness, nightmares and obsessions about sensations. (Chandra, 2006).

Anxiety is a natural and important emotion, signaling through stirrings of worry, fearfulness, and alarm, or a sudden threatening change. Yet sometimes anxiety becomes an exaggerated and unhealthy response. Guided imagery can be a way to find freedom from tension and anxiety. It can provide calm amidst worries, and relief from physical discomfort. Guided imagery is safe, effective, and has been used by people for hundreds of years. Research shows that guided imagery can help ease pain and nausea, lower blood pressure and heart rate, improve sleep

and even boost the immune system. Guided imagery is not a substitute for any medical treatment. It is intended to be used along with medical treatment to help to the children to get well. (American Academy of Pediatrics, 2003).

Social anxiety disorder, also known as social phobia, describes the fear, nervousness and apprehension in relationships with other people. We all feel a degree of this, and that's normal. But in social anxiety disorder, the intensity of the symptoms is far higher, leading to a significant impact on life. (Miller, 2014).

Anxiety disorders often present prior to adulthood. Thus, there is a need for those working with children and adolescents to be more vigilant. Data from the National Comorbidity Survey Replication, a nationally representative epidemiologic study found that, most anxiety disorders have a median age of onset of 11 years. Primary care providers, as well as adolescent's parents, friends and caregivers should be aware that anxiety has a unique presentation in children and adolescents. First, anxiety disorders are generally more common in adolescent girls than boys. Additionally, youth may exhibit more behavioral manifestations of anxiety rather than the cognitive or conscious endorsement by the patient, as is more common in adults. Similarly, behavioral concerns, such as defiant behavior at home and at school, can also accompany anxiety in youth. School avoidance, typically due to social phobia or generalized anxiety, is a particularly salient form of such oppositional behavior that often accompanies anxiety, specifically in adolescents. However it should be noted that, school avoidance is not specific to anxiety disorders, and other causes include learning difficulties or peer conflicts. Studies have demonstrated that school difficulties, decline in school performance,

and even non completion in high school, are associated with anxiety in children and adolescents. Social withdrawal from both peers and activities is also common. (Srinath & Girimaji, 2004).

The most common therapy for this disorder is the cognitive behavioral therapy. In many cases, cognitive behavioral psychotherapy techniques are effective in addressing adolescent anxiety disorders. Such approaches will help the teenager examine his anxiety, anticipate the situation in which it is likely to occur and understand its effects. This can help a youngster recognize the exaggerated nature of his fears and develop a corrective approach to the problem. Moreover, cognitive behavioral therapy tends to be specific to the anxiety problem and the teenager actively participates, which usually enhances his understanding. (Ryann, 2007).

Guided Imagery has been a treatment and prevention for anxiety, chronic stress and social anxiety. In recent years, there has been an increase in interest in mindfulness practices in western culture. There are a host of mindfulness practices including relaxation techniques, meditation, and guided imagery. Researchers have been studying such practices and their applications for quite some time as they relate to anxiety. The focus of this research is how the application of relaxation, mindfulness and particularly guided imagery relate to anxiety in children and adolescents. (Apostolo & Kolcaba, 2009).

Guided imagery is a simple process that uses the imagination to communicate with the body in a way that helps the body's natural healing process. To the body, images and experiences created in the mind can be as real as actual

events. The body will react as though the experience is happening. If the mind is picturing a relaxing experience in a relaxing place, the body will react by releasing the healthy hormones and biochemicals that help the body rest, restore itself and heal. The person may be aware of feeling better after the very first experience of guided imagery. While it doesn't take long to learn, the more practice, will have an effective benefits. Many people find it helpful to practice guided imagery twice a day, morning and evening. (Reznick, 2006).

Guided imagery therapy is a cognitive behavioral technique in which, a client is guided in imagining a relaxing scene or series of experiences. It is a gentle powerful technique more often used to promote relaxation to provide therapeutic benefits including lowering blood pressure, managing pain, reducing stress and anxiety, and even boosting the immune system. (Sasikala, 2011).

1.1 Need for the study

Social anxiety is identified as a major disorder and it is estimated that worldwide, each year the prevalence of social phobia is estimated as 4.5%, while life time prevalence appears to be 3.6%. According to the National Comorbidity Survey of the United States (US), social anxiety is one of the most common anxiety disorder. It is also the third most common mental disorder in the US. An estimated 19.2 million Americans suffer from social anxiety disorder, especially it is more common among women. The Epidemiological Catchment Area (ECA) study was conducted in five communities in the US among 18,000 adults aged 18 and older. The results of the study estimated the life time prevalence of social anxiety disorder as

2.4% of the population. In the general population, the reported prevalence of anxiety disorders in India is about 20.7/1000 population. In Karnataka, a cross sectional study revealed the prevalence of social anxiety of about 5.8%. (Wittchen, Stein & Kessler, 1999).

Today 1.2 billion adolescents stand at the crossroads between childhood and the adult world. As adolescents flourish, so do their communities, and all of us have a collective responsibility in ensuring that adolescence should not fact become an age of opportunity. India is a home of more than 243 million adolescents who account for a quarter of the country's population. In 2009, there was estimation of 1.2 billion adolescents in the world forming around 18% of the global population. The vast majority of 88% adolescents whose age 11 to 13 years of about in developing countries. The least developed countries are home to roughly 16% of all adolescents. Out of 54% of adolescents attending secondary education, 59% were male students and 49% were female students. (Furmark., et al, 2009).

Anxiety is one of the most common psychological disorders in school aged children and adolescents worldwide. The national level social anxiety prevalence rates range from 4.0% to 25.0%, with an average rate of 8.0%. Early Indian studies reported prevalence rates of psychiatric disorders among children ranging from 2.6 to 35.6%. (Deb & Chatterjee, 2010).

The prevalence estimates of social phobia among older adults and estimates were relatively low, ranging from 0.6% to 2.3%. (Taylor, 2010).

School plays a crucial and formative role in the development of the child. And problems encountered in the school system may be manifested mainly as scholastic backwardness, and consequent emotion and conduct disturbances which in turn cause a drop in scholastic performance. The coping styles of disturbed children are those of avoidance and escape. A small amount of anxiety is normal in the developing child, especially among adolescents and teens. Some teenagers develop exaggerated and usually inexplicable fears called phobias that centre on specific objects or situations that can limit their activities. (Kapur, 1998)

Several studies have revealed an increase in avoidance of going to school prevalence among the students in middle school or junior high years. Children with social phobia frequently avoid social situations, most commonly those involving interactions with others or situations. Some of the feared situations include meeting new children, speaking in the class, talking to authority figures such as Principal, giving presentations and performing in front of others. (Kapur, 1998).

With the help of an imagery tape, the researcher helps the adolescent to imagine garden, park and rainfall which leads the individual to get into a deeply relaxed state and envision with great detail relating to his senses. It is a relaxing scene for about 10-15 minutes. The individual may also imagine a wise guide answering their questions and asking them questions that they must ponder upon, in order to get to a better place in their lives. (Scott, 2006).

Numerous clinical observations suggest that guided imagery techniques have been shown to be effective in helping individuals learn or modify behaviour such as learning to relax, changing and controlling their negative emotions in response to a particular situation, event or belief, preparing themselves for positive changes. (Kavitha & Sasikala 2011).

1.2 Statement of the problem

Effect of Guided Imagery on Social Anxiety among Adolescents at Selected School, Coimbatore.

1.3 Objectives

1.3.1 To assess the level of social anxiety among adolescents at selected school.

1.3.2 To evaluate the effect of guided imagery on social anxiety among adolescents at selected school.

1.3.3 To find out the association between the level of social anxiety and selected variables.

1.4 Operational Definitions

1.4.1 Effect

Effect refers to the reduction of level of social anxiety among adolescents after administration of guided imagery as measured by the social anxiety scale.

1.4.2 Guided Imagery

It is one of the cognitive behavioral technique in which adolescents are instructed and guided by audio tape to imagine a relaxing scene such as garden, park and rainfall experiences which helps in reducing anxiety.

1.4.3 Social Anxiety

Social Anxiety refers to anxiety related feelings like increased tension, nervousness, pounding heart, stomach upset, giddiness, failure and helplessness which are experienced by adolescents as measured by Social Anxiety Scale.

1.4.4 Adolescents

Adolescents refer to the students studying in 6^{th}, 7^{th} and 8^{th} standards within the age group of 11 to 13 years.

1.5 Hypothesis

H_1: There is a significant difference between the level of social anxiety after guided imagery among adolescents.

H_2: There is a significant association between level of social anxiety and selected variables.

1.6 Conceptual Framework

This study was based on Ludwig Von Bertalanffy General system model in 1968. According to this model, a system is a set of objects complied together with a relationship between the objects and between their attributes. The objects constituting the system behave together as a whole. Changes in any part affect the whole. In general system theory, the main concepts are input, throughput and output. Input and output are processes in which the system is able to communicate reaction with its environment. (Kozier & Erb, 2006).

(i) Input:

Input can be defined as any form of information, energy or materials that enter into a general system through its boundary. In this study, input refers to, the assessment of level of social anxiety among adolescents at selected school using a social anxiety scale and the plan for administration of Guided Imagery to adolescents.

(ii) Throughput:

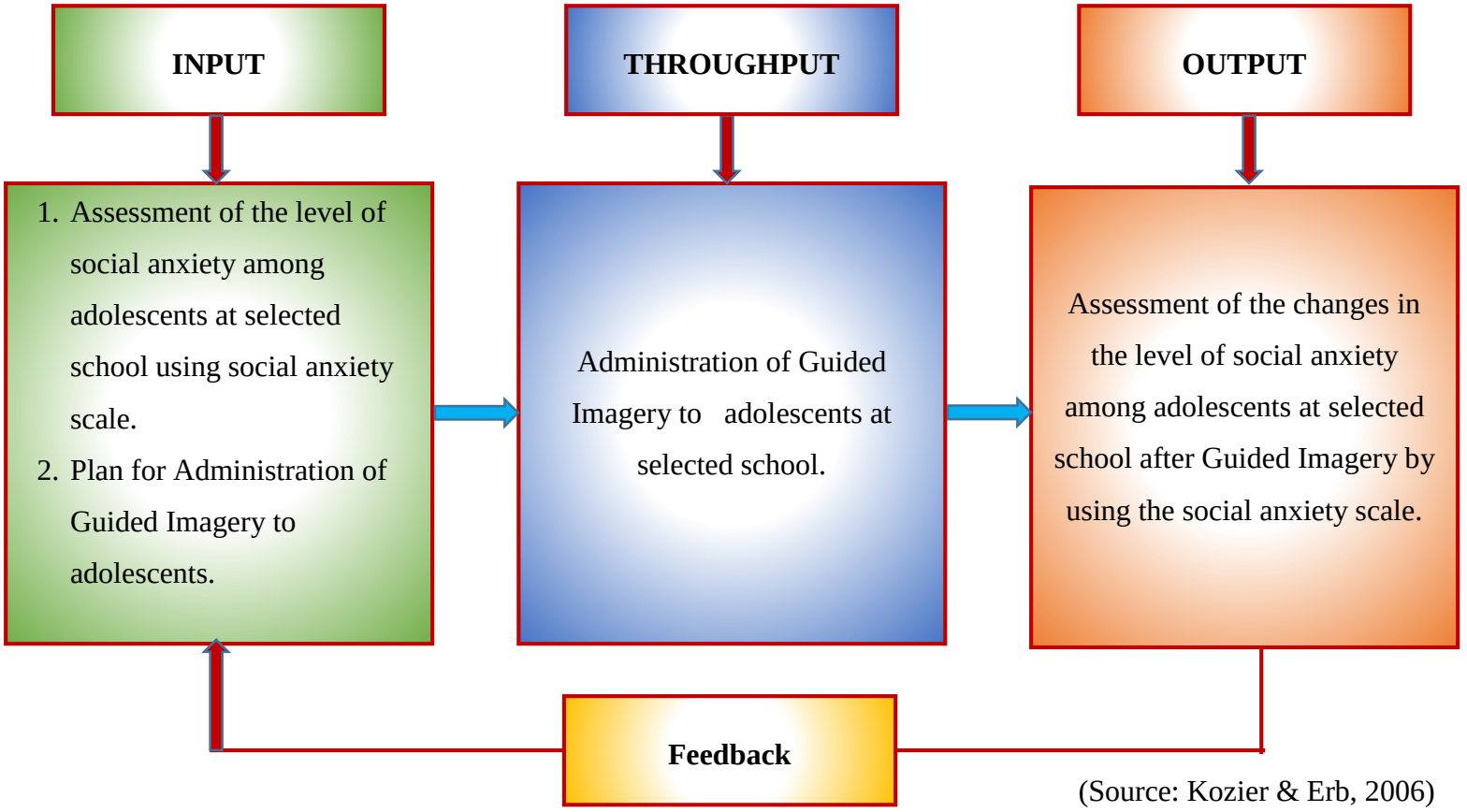
Throughput is a process that occurs at some point between the input and output process. It enables its input to be transferred in such a way that it can be used readily by the systems. In this study, throughput refers to, the administration of Guided Imagery to adolescents at selected school.

(iii) Output:

Output is any energy information or matter that is transferred to the environment. In this study, output is the assessment of the changes in the level of Social Anxiety among adolescents by using the social anxiety scale at selected school after administration of Guided Imagery.

Figure 1.1

Conceptual framework based on Modified General System Theory by Ludwig Von Bertalanffy (1968)



(Source: Kozier & Erb, 2006)

1.7 Projected outcome of the study

Administration of guided imagery will reduce social anxiety among adolescents.

REVIEW OF LITERATURE

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive finding, as well as theoretical and methodological contribution to a particular topic. It provides the researcher with an opportunity to evaluate many different research approaches.

The literature gathered by the researcher was discussed under the following sections.

2.1. Literature related to Social Anxiety

2.2. Literature related to Guided Imagery.

2.3. Literature related to effect of Guided Imagery on Social Anxiety among Adolescents.

2.1. Literature related to Social Anxiety

Mehtalia & Vankar (2004) conducted a study to find out frequency, demographic and phenomenological characteristics of Social Anxiety Disorder (SAD), family related risk factors, academic impairment and comorbidity of depression among adolescents. About 421 adolescents in one high school were screened for social anxiety disorder and depression and associated factors with academic impairment. Findings revealed that, 54 (12.8%) had social anxiety disorder. The most common manifestation of social anxiety disorder was avoidance from giving speeches. Social anxiety disorder was equally common among both genders and was associated with difficulty in coping with studies, concern about weight, having less friends, lack of intimacy with parents,

and being treated differently from siblings. The study concluded that, Social anxiety disorder is a common adolescent disorder, with major depression as comorbidity and associated with impairment in academic functioning. The authors recommended that, all adolescents especially with depression consulting medical professionals should be interviewed for social anxiety disorder and treated.

Bella & Omigbodun (2002) conducted a study to determine prevalence, correlates and co-morbidity of social anxiety among university students at the University of Ibadan, Nigeria. Sixty samples were selected by using purposive sampling technique. The data were collected by using Composite International Diagnostic Interview (CIDI), the alcohol use identification test, the General Health Questionnaire and the World Health Organization Disability Assessment Schedule. The results showed that, lifetime and 12 month prevalence of social anxiety were 9.4 and 8.5% respectively. The study concluded that, prevalence of social anxiety among Nigerian University students is similar to the results found in other parts of the world.

Liebowitz., et al (2003) conducted a study on undergraduate students in various faculties of a university at, Vadodara in India. The sample size was 380 and students were selected by stratified random sampling. The data were collected using Social Phobia Inventory, Liebowtiz Social Anxiety Scale (LSAS), the Sheehan's Disability Scale and the WHO Quality of life - BREF questionnaire. The result was that the subjects had a Social Phobia Inventory Score (SPIN) of 19 and more which showed that social phobia was present in almost 20% of the population .

As measured by the Liebowtiz Social Anxiety Scale (LSAS) among the subjects with social phobia the majority (70%) had mild to moderate severity followed by marked severity (24%) with severe to very severe found in only 6% of them.

Batra (2010) conducted a study on Social Anxiety among 50 students of a recognized school. The results showed that, 40% of the students had moderate levels of social anxiety, 36% of the students had low levels of social anxiety and 24% had severe levels of social anxiety.

Siegel & Dickstein (1998) conducted a study on anxiety disorders in adolescents. They present similarly to adult anxiety disorders with some additional features, including somatic symptoms, behavioral concerns, and comorbidity. Affective neuroscience has provided a window into the underlying brain mechanisms that might be involved in anxiety disorders, the most significant of which is at the level of the amygdala. In terms of assessment, structured interviews are the most thorough way to diagnose adolescent anxiety disorders, but self-report and parent-report measures, such as the Revised Children Manifest Anxiety Scale (RCMAS) and Child Behavior Checklist are effective screening measures in a primary care setting. Anxiety disorders can be treated using psychotherapy, like cognitive behavioral therapy and pharmacological interventions, or a combination of both of these modalities. Adolescent anxiety typically follows a chronic course with and also leads to other disorders such as depression and substance use in adulthood.

Rees (1995) conducted a study on pretest-posttest experimental design with a convenience sample of 60 subjects was used to examine the effects of relaxation under guided imagery protocol on anxiety, depression, and self-esteem in primiparas during

the first 4 weeks of the postpartum period. The results showed that, the experimental group had less anxiety and depression and greater self esteem than did the control group at the end of the period. Positive correlations were obtained between anxiety and depression, negative correlations between self-esteem and anxiety and depression. All findings were significant at the 0.05 level.

Yousefi (2009) conducted a study to investigate the relationship between test anxiety and GPA (Grade Point Average) through memory in high school students. The samples were 400 students (200 male and 200 female) in the age range of 15-19 years. The instrument used for data collection was the Test Anxiety Inventory (TAI). An analysis of the data obtained from the current study showed that, for the respondents test anxiety had a significant impact on Grade Point Average (GPA) through memory ($z=1.93$, $p\leq 0.02$). The results of the study recommended that, academic achievement and mental health needs to be developed in school settings through the use of support strategies such as educational guidance and counseling, teaching life skill programs and psychotherapy.

Burke (2001) conducted a study to investigate the relationship between gender, academic achievement, years of study and levels of test anxiety among 110 undergraduate students from University of Isfahan. The Suinn's Test Anxiety Questionnaire with 48 items was used to gather data. For analysis of data, correlation coefficient and chi square test were used. The findings revealed that female students had a higher level of test anxiety in contrast to male students. The average of test anxiety scores among female students was higher. Also a statistically significant negative correlation was observed between test anxiety and academic achievement. There was no meaningful relationship between test anxiety and years of study.

Feldner & Michael (2006) conducted a study to assess the school based cognitive behavioral treatment for social anxiety among adolescents at Child Study Centre, New York University School of Medicine. The samples were sixty adolescents with social anxiety disorder. A fourteen session group treatment programme was conducted in the school. Child version of Anxiety Disorder Interview Schedule and Liebowitz Social Anxiety Scale for Children and Adolescents were used. The results showed that, fear and avoidance ratings of 10 most feared situations significantly decreased after treatment with effect sizes of 1.5 for anxiety and 2.1 for avoidance. The researcher concluded that, there was a decrease in the social anxiety score after the treatment.

2.2. Literature related to Guided Imagery

Pillitteri (1995) stated that for the past several decades, papers in the nursing literature have advocated the use of cognitive interventions in clinical practice. Increasing consumer use of complementary therapies, a cost driven health care system, and the need for evidence based practice all lend urgency to the validation of the efficacy of these interventions. This review focuses specifically on guided imagery intervention studies identified in the nursing, medical and psychological literature published between 1966 and 1998. Included were 46 studies of the use of guided imagery for management of psychological and physiological symptoms. There is preliminary evidence for the effectiveness of guided imagery in the management of stress, anxiety and depression, and for the reduction of blood pressure, pain and the side effects of chemotherapy. Overall, results of this review demonstrated a need for systematic, well-designed studies, which explore several unanswered questions regarding guided imagery.

Ford & Martin (2004) defined Guided Imagery as, the use of relaxation and mental visualization to improve mood and physical wellbeing. He states that, some therapists also use Guided Imagery in group settings. It is a two part process. The first component involves reaching a state of deep relaxation through breathing and muscle relaxation techniques. The second component of the exercise is imagery or visualization.

Investigators at Cincinnati Children's Hospital Medical Center (2004**)** concluded that, imagery was effective in reducing post-operative pain following tonsillectomy and adenoidectomy. Anxiety also was measured using the state trait anxiety inventory for children. MANCOVA showed lower anxiety in the treatment group.

University of South Florida (2003) in Tampa, researchers asked 19 men and women, aged were 56 to 75, which had chronic bronchitis and emphysema to rate their levels of anxiety, depression, fatigue, anxiety and discomfort before and after they began using imagery. The researchers concluded that, guided imagery significantly improved the overall quality of these people's lives.

Haplin Lind & Rao (2002) stated that, clinical research has proved that Guided Imagery is a simple form of relaxation and that it could reduce pre-operative anxiety and postoperative pain among surgical patients.

Cynthia & Richard (2000) conducted a study to state that Imagery had been found to be very effective for the treatment of anxiety, depression and stress. Imagery is at the center of relaxation techniques designed to release brain chemicals that acts as the body's natural brain tranquilizers, lowering blood pressure, heart rate and anxiety

levels. By and large, researchers find that these techniques work. Because imagery relaxes the body, doctor specializing in imagery often recommend it for stress related conditions such as head ache, chronic pain, high blood pressure and cramping from premenstrual syndrome.

Mc Carty (1999) in their article in the Journal of Invasive Cardiology emphasized the many uses of Guided Imagery in health care. The authors discussed how guided imagery significantly reduces anxiety, stress, pain, and side effects of treatments, blood pressure, headaches and strength immune functioning.

Trachtenberg (2008) conducted a study to find the effect of guided imagery on the immune system. The study suggested that, Guided Imagery can reduce stress, elevate the immune system and decrease white blood cells in medical patients.

Levey (1998) with his cardiac team at California, implemented a Guided Imagery programme to compare cardiac surgical outcome between two groups of patients. A questionnaire was developed to assess the benefits of Guided Imagery programme. Those who were willing to participate in the study were administered the questionnaire. Overall, guided imagery was considered a complementary means to reduce anxiety, pain and length of stay among cardio surgery patients.

Ohio State University (2006**)** in Colombus, found that people with cancer who used imagery while receiving chemotherapy felt more relaxed, had reduced stress levels, were better prepared for their treatment and were more positive about care than those who did not use the technique. Guided Imagery has proven relaxation techniques as verbalized by anxiety and stress management experts.

Lama, et al (2004**)** stated that, as more people achieve some degree of the mental calm, insight or the ability to transform negative emotions into positive ones, there will be a natural reinforcement of basic human values and consequently a greater chance for peace and happiness for all. That can be achieved through guided imagery. The investigator found that, guided imagery techniques is said to be one of the effective measures in relieving stress, anxiety, depression and pain.

Carol & Baird (2006) conducted a study on osteoarthritis which is on the most common cause of disability in older adults, which leads to poor Quality of Life (QOL). Disability is caused primarily by the joint degeneration and pain associated with osteoarthritis. A randomized pilot study was conducted to test the effectiveness of Guided Imagery with Relaxation (GIR) to improve health related quality of life in women with osteoarthritis. A two group (intervention versus control) longitudinal design was used to determine whether guided imagery with relaxation leads to better health related quality of life in these individuals and whether the improvement could be attributed to intervention associated improvements in pain and mobility. Twenty eight women were randomized to either the guided imagery with relaxation intervention or the control intervention group. Using guided imagery for 12 weeks significantly increased women's Health Related Quality of Life in comparison to the women who used the control intervention, even after statistically adjusting for changes in pain and mobility. These findings suggest that the effects of guided imagery on health related quality of life are not limited to improvements in pain and mobility. Guided Imagery may be an easy to use self management intervention to improve the QOL of older adults with osteoarthritis.

Carter (2006) conducted a study on the use of prepackaged compact discs (CDs) which incorporate Guided Imagery (GI) with suggestions and affirmations in quick reduction of stress related issues for all participants. Notable improvements were identified in general feelings of well being (91% of participants), positive thoughts (82%) and ability to cope in stressful situations (73%). Decreases in incidence ratings were greatest for insomnia, anger and negative thoughts. Most commonly the first benefits people noticed were increased relaxation, decreased negative thoughts and decreased social anxiety.

Joseph & Roscoe (2007) conducted a study on comparing the effectiveness of guided imagery training in reducing blood pressure and respiratory rate among highly stressed individuals among 120 female students. Out of the total samples, only those whose anxiety scores were greater than 40 age and greater than 70 were selected for the study. Ultimately, 30 highly stressed females with high anxiety scores, who are free from any ailments and not undergoing any kind of treatment were chosen for the study. Results indicated that, Guided Imagery was effective in reducing blood pressure after the training session.

Lambert & Sally (1996) conducted a study on effect of guided imagery, and relaxation. The results showed an improvement in the postoperative course of adult surgical patients. Children have successfully used guided imagery to significantly reduce the pain associated with invasive procedures and to improve selected medical conditions. The purpose of this study was to examine the effect of guided imagery on the postoperative course of pediatric surgical patients. Fifty two children (matched for

sex, age, and diagnosis) were randomly assigned to an experimental and control group. The experimental group was taught guided imagery by the investigator. Practice of the imagery technique included suggestions for a favorable postoperative course. Significantly lower postoperative pain ratings and shorter hospital stays occurred for children in the experimental group. Anxiety was decreased for the guided imagery group and increased postoperatively for the control group. This study demonstrates the positive effects of guided imagery for the pediatric surgical patient.

Deborah & Lindberg (2005) conducted a study to examine the effects of guided imagery/music and music on anxiety. Subjects (n=49) were assigned to a guided imagery /music intervention (test group) or a music intervention (control group) to compare the effects of these interventions on anxiety symptoms, using a home based audiotape program. Subjects completed self report of anxiety using the state and trait portion of the state trait anxiety inventory and the personal stress assessment. The study showed both guided imagery/music and music can be beneficial interventions in the reduction of state trait anxiety. Subjects listened to the audiotape three times a week over a three week period assessing their anxiety level before listening to the audiotape on the first day of the week and then at the end of the session on the last day of the week, allowing of a total of 9 listening sessions over the three weeks. The study suggested that health care providers can offer both guided imagery/music and music as effective methods of relaxation and reduction of anxiety.

Weydert & Shapiro (1999) study conducted to the therapeutic effect of guided imagery on 22 children, aged 5-18 years with recurrent abdominal pain. Children who learnt guided imagery with progressive muscle relaxation had significantly greater

decrease in the number of days with pain than those learning breathing exercises alone and significantly greater decrease in days with missed activities at one and two months.

2.3. Literature related to effect of Guided Imagery on Social Anxiety among Adolescents

Kavitha & Sasikala (2009) conducted a study in Bangalore to evaluate the effects of guided imagery relaxation programme for reducing the anxiety level among exam going students. A randomized study consisting of a 14 days relaxation technique with pre and post anxiety scores of 40 exam going students were randomly assigned to a 25 minutes audio visual relaxation of guided imagery program to experimental group and not for control group. Anxiety level scores were recorded to both groups. The result showed that, for experimental group the reduction in anxiety (75% had no anxiety and 25% had healthy anxiety) after 14 days intervention training was statistically significant, whereas anxiety level was same to control group. The study concluded that, there was a significant anxiety reduction achieved through a 25 minute visual guided imagery relaxation program among exam going students. Guided imagery is more effective in lowering anxiety level.

A study was conducted to determine anxiety levels and coping strategies of registered nursing students on campus and distance education at three different times. Differences between the two groups of nursing students on selected demographic variables, past academic performance, anxiety levels and coping strategies were assessed. Significant differences were found in anxiety levels, coping strategies and past academic performance by age, marital status, employment and work setting. However, problem solving was used extensively by both groups while social support

was used more by on the campus students. The results were discussed in terms of Folk man and Lazarus's theory of stress and coping, and implications of nurse educators was presented.

Dickstein (2011) conducted a study on Guided Imagery to listen to the patient's concerns, provide empathy and support through techniques such as active and reflective listening. Guided Imagery therapy combined with a psycho educational component has been used as a comparative treatment in cognitive behavior therapy studies and has been found to be effective to treat anxiety disorders.

Virginia (2011) conducted a study on Inova Heart Center in Falls Church. She stated that "Clinical research has demonstrated that guided imagery, a simple form of relaxation, can reduce preoperative anxiety and postoperative pain among patients undergoing surgical procedures''. Patients who completed the guided imagery program had a shorter average length of stay, a decrease in average direct pharmacy costs, and a decrease in average direct pain medication costs while maintaining high overall patient satisfaction with the care and treatment provided.

Chellammal (2000) conducted a study among surgical patients regarding the effectiveness of muscle relaxation exercises and guided imagery in reduction of postoperative pain and anxiety. The patient was instructed to imagine himself in a calm tranquil place. They, a spot where he / she feels comfortable or favorite room in his home or imagine that, he is on the beach seeing the sky, smelling the ocean, hearing the waves and crashing on the shore. The results indicate that, Guided Imagery is more effective in reduction of postoperative pain and anxiety.

Mc Carthy (1999) from California conducted a study on the use of Guided Imagery techniques that increases psycho physiological coherence with a range of favorable outcomes, including reduced anxiety and depression, enhanced cognitive performance, reduced physical stress symptoms and reduced cortisol. Guided Imagery interventions has been associated with reduced depression and improved functional capacity in patients with congestive heart failure**.**

METHODOLOGY

This chapter deals with the description of research approach, research design, setting, population, sampling, criteria for sample selection, variables of the study, tools for data collection, report of the pilot study, changes done after pilot study, procedure for data collection and techniques of data analysis and interpretation.

3.1 Research Approach

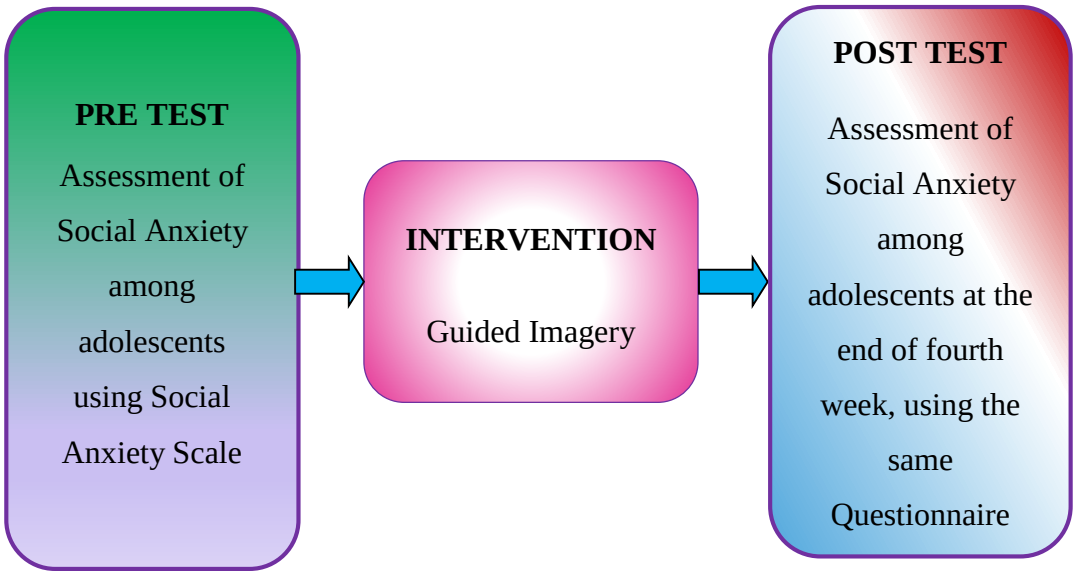
In the present study the researcher aimed to determine the effect of Guided Imagery on Social Anxiety among adolescents at a selected school. Hence, to achieve the objectives of the study, quantitative research approach was adopted in the study. The researcher manipulated independent variable and measures the changes in the dependent variable.

3.2 Research Design

Pre-experimental, one group pretest-posttest design was adopted in the study. The study aimed to evaluate the effect of Guided Imagery on Social Anxiety among adolescents at a selected school, in Coimbatore. Pre experimental design was used in the present study, where control group and randomization was excluded from the present study.

Figure 3.1

Schematic Representation of Research Design



3.3 Setting

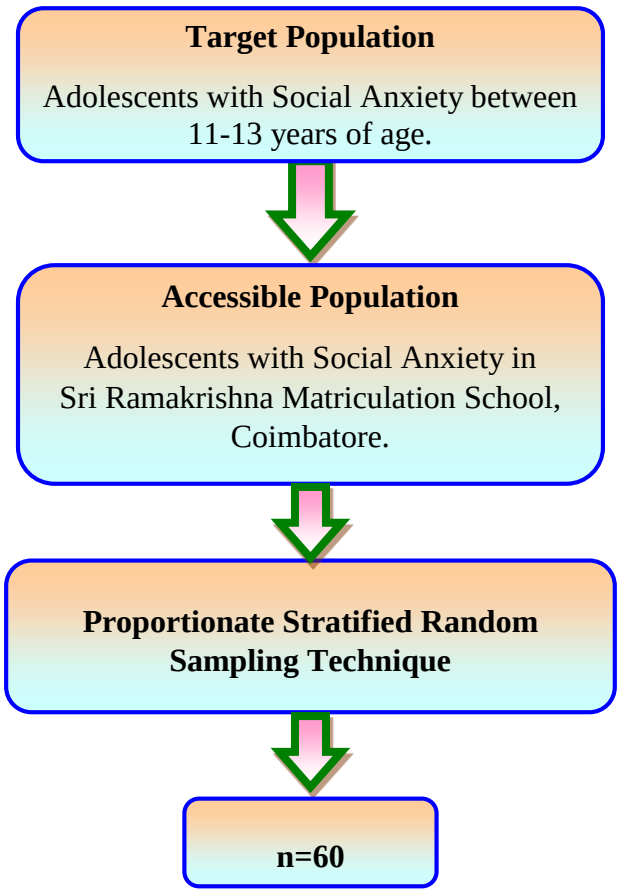
The study was conducted at Sri Ramakrishna Matriculation School, Coimbatore. This is located at about 1.5 km away from the College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences. It is a private institution with a total strength of 1950 students studying from Pre-Kindergarten classes to XII standard. The medium of instruction is English and it is a co-education school. Out of 1950 students, 320 students were between 11 to 13 years of age, and were studying in 6^{th}, 7^{th} and 8^{th} standards.

3.4 Population

The target population for the present study were adolescents between the age group of 11-13 years. The accessible population for this study were the students studying in 6th, 7th and 8th standards studying in Sri Ramakrishna Matriculation School, Coimbatore.

Figure 3.2

Schematic Representation of Sampling Process



3.5 Sample size Determination

A total of 60 adolescents in the age group of 11-13 years were studying 6th, 7th and 8th standard. By using Proportionate Stratified Random Sampling technique, 60 Adolescents who met the present inclusion and exclusion criteria were selected as samples.

Sample size was determined by Mehargen Formula,

$$n = \frac{t^2 X \ p(1-p)}{(ME)^2}$$

Where,

n = Sample size

t = Level of Significance (95%) = 1.95

p = Prevalence rate (4%)

ME = Margin of error (0.04)

t = 95% or 1.96

p = 4% or 0.04

ME = 4% or 0.04

n = $(1.96)^2 \times 0.04(1-0.04) \div (0.05)^2 = 58.9$

Sample size (n = 60)

3.6 Sampling Technique

Proportionate stratified random sampling method was used. There were 320 students within the age group of 11-13 years in Sri Ramakrishna Matriculation School, Coimbatore. The students were divided into 3 strata based on the level of education. Each strata consisted of 110, 105 and 105 students studying in 6^{th}, 7^{th} and 8^{th} standards respectively. Using lottery method, 20 students were selected from each strata.

Proportionate stratified random sampling $= \frac{\text{Strata}}{\text{Accessible population}} \times$ sample size

Where

Strata -

6^{rd} standard = 110 school adolescents

7^{th} standard = 105 school adolescents

8^{th} standard = 105 school adolescents

Accessible population = 320

Sample size = 60

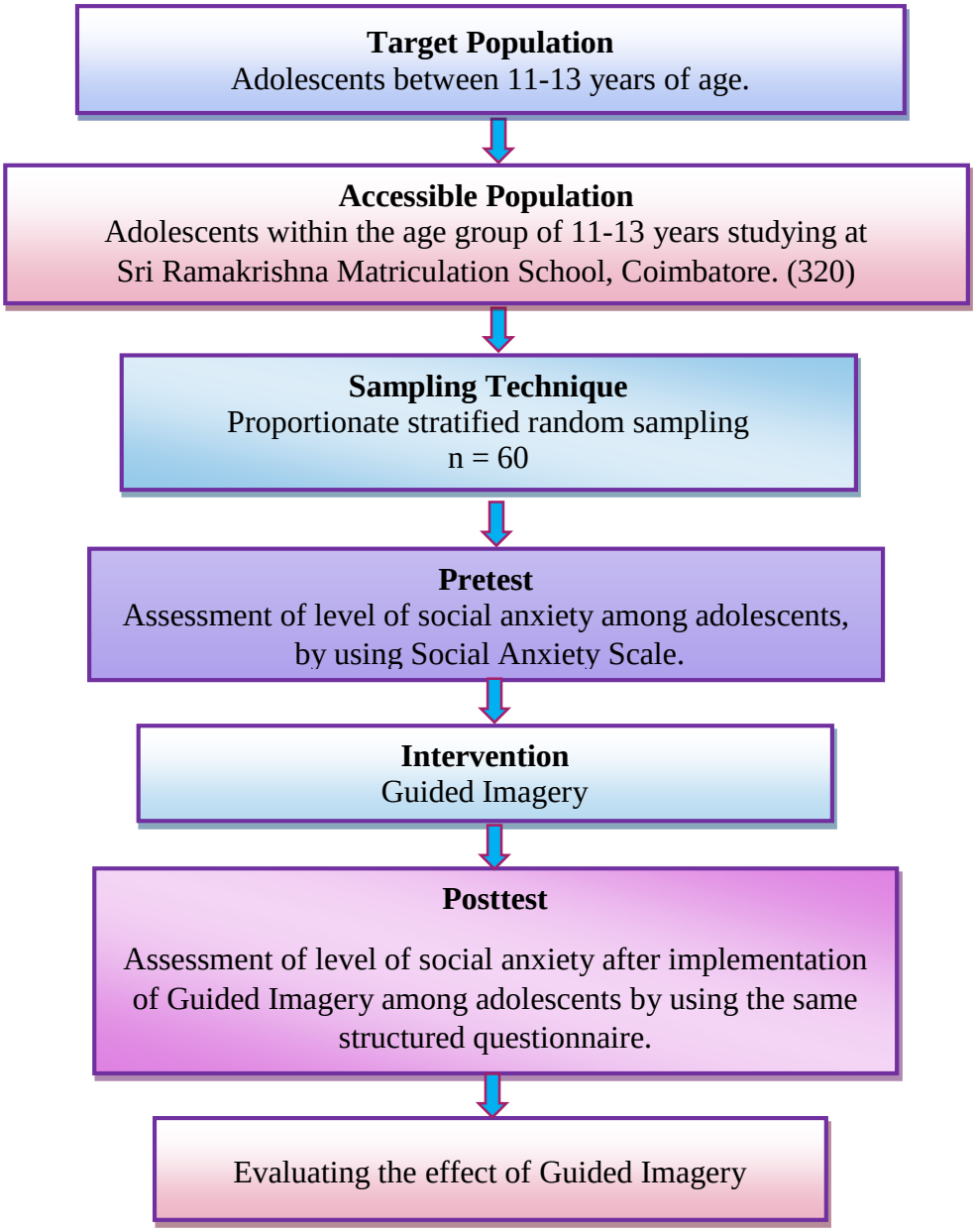
6^{rd} standard = $\frac{110}{320} \times 60 = 20.6$

7^{th} standard = $\frac{105}{320} \times 60 = 19.6$

8^{th} standard = $\frac{105}{320} \times 60 = 19.6$

Figure 3.3

Diagrammatic Representation of Research Process

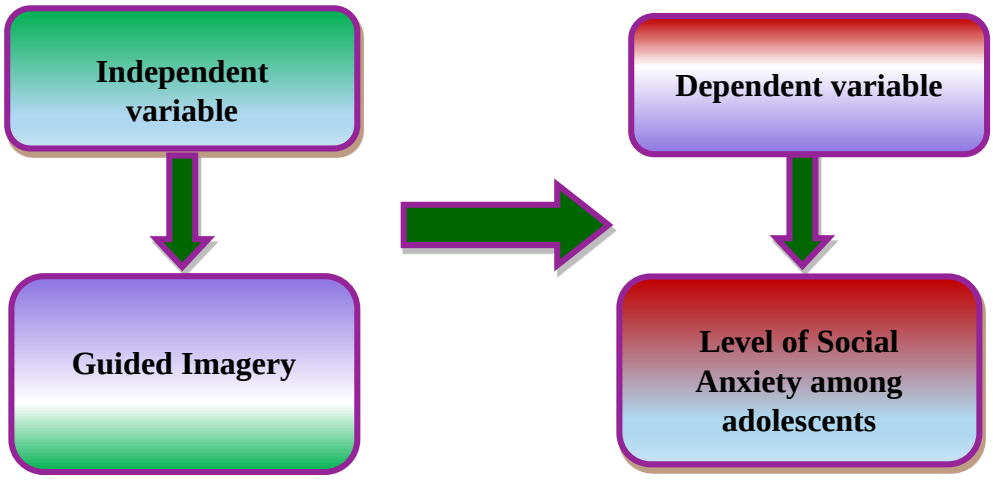


3.7 Variables of the study

In this study, the independent variable were Guided Imagery and the dependent variable were Level of Social Anxiety among adolescents.

Figure 3.4

Schematic Representation of Variables



3.8 Tools for data collection

The following tools were used for data collection

3.8.1 Section A : Questionnaire to collect Demographic profile

3.8.2 Section B : Social Anxiety Scale

Section-A

3.8.1 A Questionnaire to Collect Demographic Profile;

The demographic data consisted of age of adolescents, gender, education, religion, area of residence, type of family, number of siblings, birth order of adolescents, monthly income of the family, educational level of father and mother, occupational status of father and mother, extracurricular activities, and relaxation techniques followed by adolescents.

Section-B

3.8.2 Social Anxiety Scale

The Social Anxiety Scale was a standardized scale for children and adolescents (SAS - CA) which was developed by North Carolina Neuropsychiatry - Attention and Memory Centre, California in the year 1988. This tool was a 4 point Likert scale with 20 items that could be completed within 20 minutes. It mainly focused on activities in the school setting. The adolescents were expected to read each statement and put a tick mark in the appropriate column to indicate how anxious he/she felt.

The responses were scored as follows:

Not a Problem - 0, Mild - 1; Moderate - 2; Severe - 3; Scoring of Anxiety Questionnaire for adolescent students was done by adding the score of each item. The minimum score was 0 and maximum score was 60. The total social anxiety score of each individual was interpreted as per the guidelines given in Table 3.1

Table: 3.1 Interpretation of Social Anxiety Scores

Scores	Level of Social Anxiety
0	Not a problem
1-20	Mild Anxiety
21-40	Moderate Anxiety
41-60	Severe anxiety

3.9 Guided Imagery

The adolescents were explained regarding the needs and usefulness of the guided imagery. The investigator developed a good interpersonal relationship with the adolescents. A calm and quiet environment with good ventilation was provided. The adolescents were provided a comfortable sitting position, tight clothing was loosened and glasses were removed.

Procedure

Step: 1

Explaining the procedure to the adolescents and advising to rest hands on the lap or on the arms of the chair. Take a few slow, even breaths.

Step: 2

The adolescent is expected to follow the instructions given through the audio tape.

When you are feeling relaxed, gently close your eyes. Picture yourself entering into on a beautiful garden. Picturize soft green grass around you and crystal clear rain drops gently touching your body. Picturize a cloudless sky above and mountains behind you.

Step: 3

Breathe in and smell the scent of the beautiful flowers. Try and Notice the sound of a deer running around you and birds and trees behind you. Feel the cool grass underneath your feet and the warm sun on your skin. Notice the taste of a refreshing tropical drink as you bring it to your mouth.

Step: 4

Stay in this scene for as long as you like. Notice how relaxed and calm you feel. Enjoy the feeling of relaxation as it spreads throughout your entire body, from your head to your toes. Notice how far away you feel from anxiety.

Step: 5

When you are ready, slowly count backward from 10. Open your eyes, feeling relaxed but alert. Similarly the adolescents is guided through a park and also to experience rainfall.

3.9.1 Duration of Intervention

The guided imagery is given for 4 consecutive weeks. Three sessions are given in each week with each sessions for about 15-20 minutes. A total of 12 sessions were provided for each individual and the level of social anxiety was assessed after Guided Imagery at the end of the 4^{th} week.

3.10 Validity of the Tool

Validity refers to whether an instrument accurately measures what it is supposed to measure. The tool was validated by six subject experts that included five nursing faculty and one medical guide. The experts were requested to give their opinion and suggestions regarding relevance, appropriateness, accuracy and degree of agreement in each item of the tool. Suggestions and recommendations given by the experts were accepted and necessary corrections were done. The tool was found to have high content validity.

3.11 Ethical Clearance

The proposed study and tool were presented to the ethical committee. The study was approved by the committee members. The ethical committee had given a written consent to proceed with the study.

3.12 Pilot Study

Pilot study was conducted to check the feasibility and practicability of the study. The Pilot study was conducted at Siddha Naidu Matriculation School, Coimbatore with 30 samples. Permission was obtained from the school authority. The research design used for the study was one group pretest posttest design. Samples were selected by convenient sampling technique based on the inclusion and exclusion criteria. The researcher developed a good rapport with the adolescents and explained the benefits of the intervention. Pretest was done using social anxiety scale for adolescents on the first day. Guided Imagery was administered for 15 – 20 minutes for three times a week. Post-test was done on the 7^{th} day using the same questionnaire.

The data was tabulated and analyzed using descriptive and inferential statistical methods. The mean score of the anxiety level before and after Guided Imagery was 29.66 and 21 with a standard deviation of 4.67 and 5.13 respectively with a mean difference of 8.6. The calculated 't' value was 9.257 which was greater than the table value (2.05), at 0.05 level of significance. Thus the hypothesis "There is a significant difference in the level of social anxiety among adolescents before and after implementation of Guided Imagery" was accepted. Hence, it was concluded to proceed with the main study.

3.13 Changes Made After Pilot Study

According to the suggestions given by research committee, purposive sampling technique was changed to proportionate stratified random sampling technique for the main study.

3.14 Procedure for Data Collection

The main study was initiated after the pilot study. The researcher conducted the study at Sri Ramakrishna Matriculation School, Coimbatore. Using proportionate stratified random sampling method, the students were divided into three strata based on the level of education. Using lottery method twenty samples were selected from each strata. Therefore, a total of 60 adolescents were selected for the study. A structured questionnaire was used to assess the social anxiety before intervention. Following that, Guided Imagery was administered for 15-20 minutes for three times a week. Hence, each individual received totally 12 sessions over 4 weeks. At the end of the fourth week, posttest was done to assess the level of Social Anxiety using the same questionnaire. The effectiveness of Guided Imagery on Social Anxiety was determined through comparing the pretest and post test scores.

3.15 Technique of Data Analysis and Interpretation

Descriptive and inferential statistical methods (Paired‘t’ test and Chi square test) were used for data analysis. Descriptive statistical method was applied for the analysis of demographic variables. Inferential statistical methods were used to identify the effect of Guided Imagery on Social Anxiety and association with demographic variables.

3.15.1 Paired‘t’ test

Paired‘t’ test was used to find out the significance of Guided Imagery.

$$t = \frac{\bar{d}}{SD}\sqrt{n}$$

$\bar{d}$ = Mean of difference

SD = Standard deviation

n = Number of samples

3.15.2 Chi-Square test

Chi-Square test was used to find out the association between pretest level of Social Anxiety and selected demographic variables.

$$\chi^2 = \Sigma \frac{[(O-E)]^2}{E}$$

Where,

O = Observed value in each category

E = Expected value in corresponding category

CHAPTER IV
DATA ANALYSIS AND INTERPRETATION

Analysis of the data can be defined as the systematic organization and synthesis of research and testing of the research hypothesis using these data. The aim of the study was to determine the effect of Guided Imagery on Social Anxiety among adolescents at a selected school. This chapter deals with the analysis and interpretation of data collected from 60 adolescents.

The data gathered were analyzed and interpreted in the light of the objectives and hypotheses of the study. Descriptive and inferential statistics were employed to analyze the data. Frequency and percentage distribution was used to represent the sample characteristics, and level of social anxiety was analyzed through mean, standard deviation and mean percentage. Paired 't' test was used to analyze the effect of Guided Imagery on Social Anxiety and Chi-Square test was used to assess the association between pretest level of social anxiety and selected demographic variables among adolescents.

ORGANIZATION OF THE FINDINGS

The data obtained from the adolescents are organized, analyzed and presented under the following sections.

Section I

Demographic variables of adolescents.

Section II

Assessment on the level of social anxiety among adolescents.

Section III

Effect of guided imagery on social anxiety among adolescents.

Section IV

Association between the pretest levels of social anxiety among adolescents and selected demographic variables.

Section- I

Demographic Variables of Adolescents

The demographic data included in the present study were age of adolescents, gender, education, religion, area of residence, type of family, number of siblings, birth order of adolescents, monthly income of the family, educational level of father and mother, occupational status of father and mother, extracurricular activities, and relaxation techniques followed by adolescents. Collected data was analyzed using descriptive and inferential statistics and presented in the form of tables and figures.

Table 4.1.1

Age Group of Adolescents

(n = 60)

S. No	Age in Years	Frequency	%
1.	11 Years	23	38.3
2.	12 Years	19	31.7
3.	13 Years	18	30

The above table depicts that, out of 60 samples, 23 (38.3%) adolescents were 11 years, 19 (31.7%) were 12 years and 18 (30%) adolescents were 13 years.

Figure 4.1.1

Age Group of Adolescents

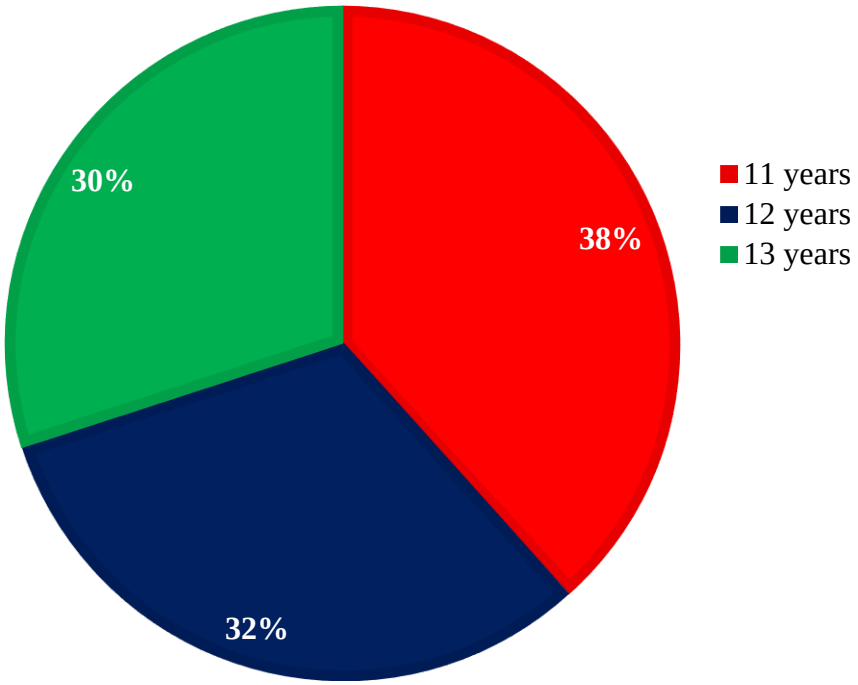


Table 4.1.2

Gender of Adolescents

(n=60)

S. No	Gender	Frequency	%
1.	Male	25	41.6
2.	Female	35	58.4

The above table reveals that, 35 (58.4%) adolescents were males and 25 (41.6%) were females among the participants of this study.

Figure 4.1.2

Gender of Adolescents

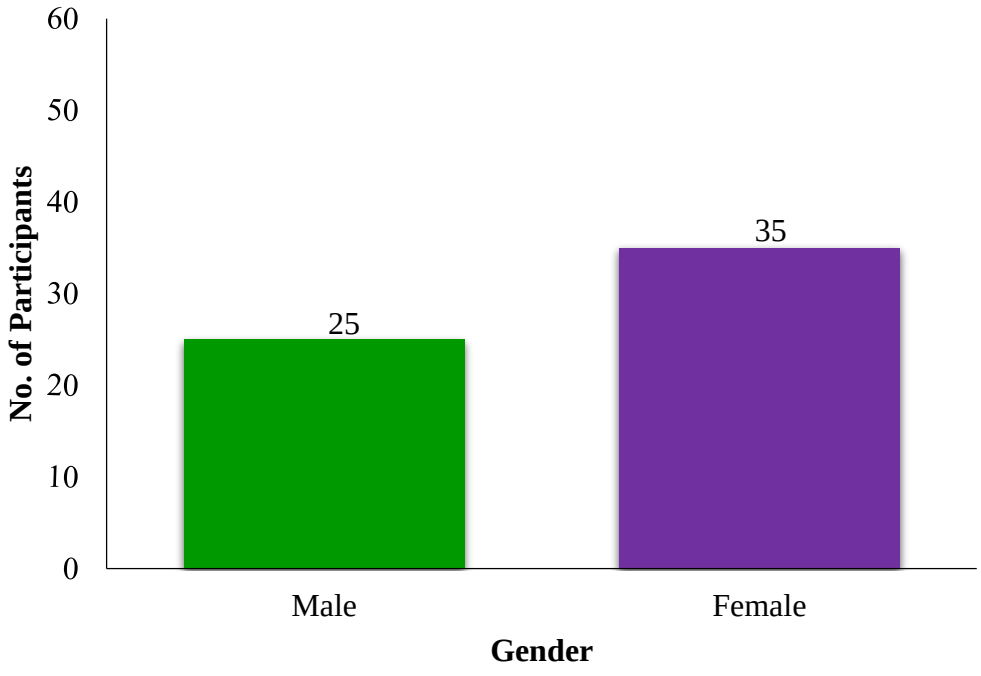


Table 4.1.3

Educational Level of Adolescents

(n = 60)

S. No	Educational Level	Frequency	%
1.	6 th	20	33.33
2.	7 th	20	33.33
3.	8 th	20	33.33

The above table represents the standard of adolescents in which, 20 (33.33%) adolescents were studying in 6th standard, 20 (33.33%) were in 7th standard, and 20 (33.33%) were in 8th standard.

Figure 4.1.3

Educational Level of Adolescents

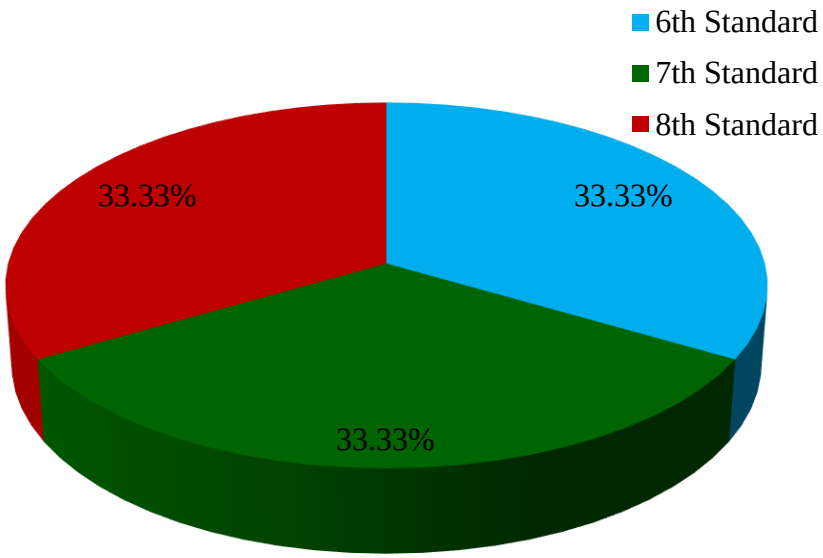


Table 4.1.4

Religion of Adolescents

(n=60)

S. No	Religion	Frequency	%
1.	Hindu	58	96.6
2.	Christian	1	1.7
3.	Muslim	1	1.7

The above table reveals that, 58 (96.6%) adolescents were Hindus, 1 (1.7%) was a Muslim and 1(1.7%) belonged to Christian religion.

Figure 4.1.4

Religion of Adolescents

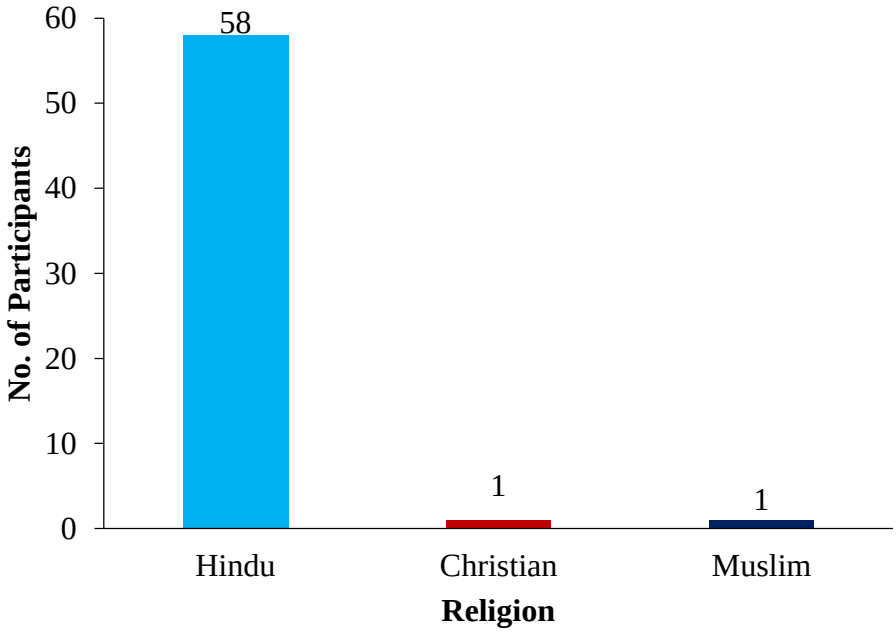


Table 4.1.5

Area of Residence of Adolescents

(n=60)

S. No	Area of residence	Frequency	%
1.	Urban	46	76.7
2.	Rural	14	23.3

The above table reveals that, 46 (76.7%) adolescents were from urban area and 14 (23.3%) were from rural area.

Figure 4.1.5
Area of Residence of Adolescents

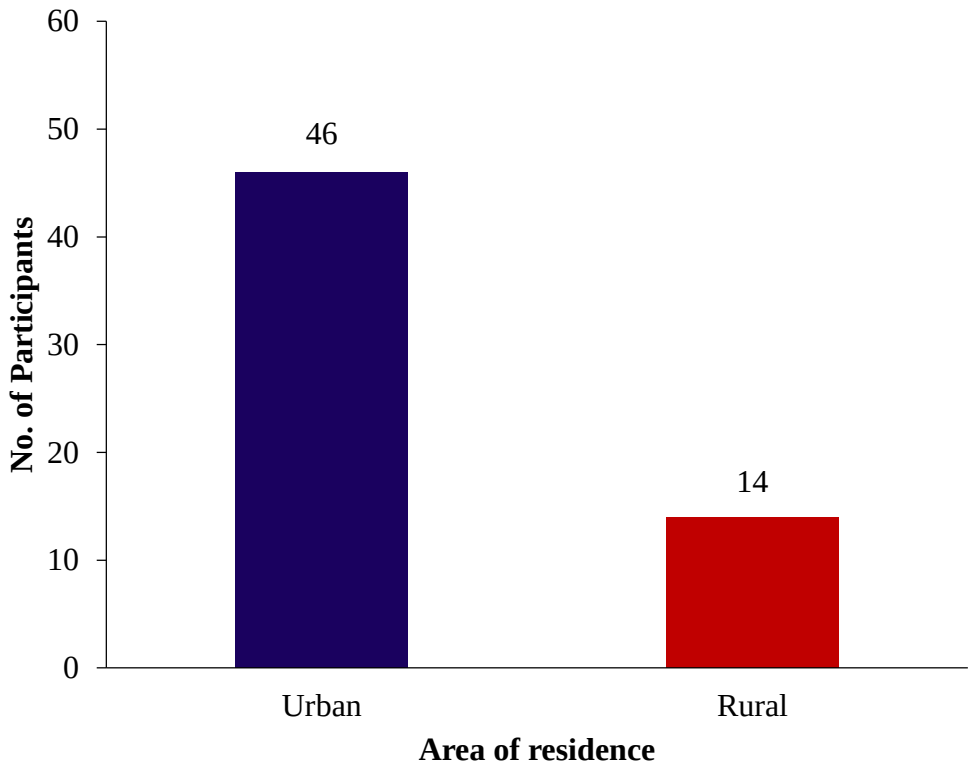


Table 4.1.6

Type of Family of Adolescents

(n=60)

S. No	Type of Family	Frequency	%
1.	Nuclear Family	25	41.6
2.	Joint Family	35	58.4

The above table shows that, 35 (58.4%) adolescents were living in a nuclear family and 25 (41.6%) were in joint family.

Figure 4.1.6

Type of Family of Adolescents

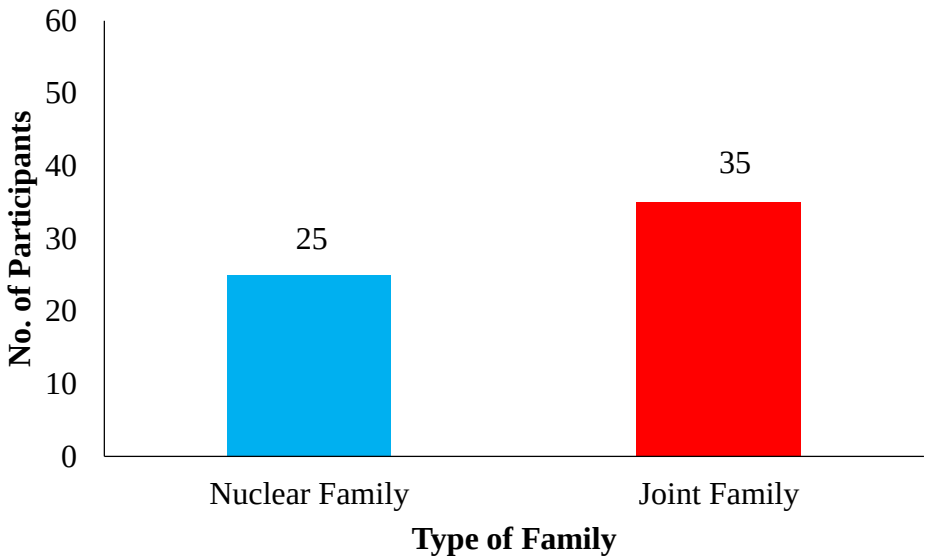


Table 4.1.7

Number of Siblings of Adolescents

(n=60)

S. No	Number of siblings of Adolescents	Frequency	%
1.	One	10	16.6
2.	Two	46	76.7
3.	Three	3	5
4.	Four	1	1.7

The above table reveals that, 46 (76.7%) adolescents were having two siblings, 10 (16.6%) had one sibling, 3 (5%) had three siblings and 1(1.7%) adolescent had four siblings.

Figure 4.1.7

Number of Siblings of Adolescents

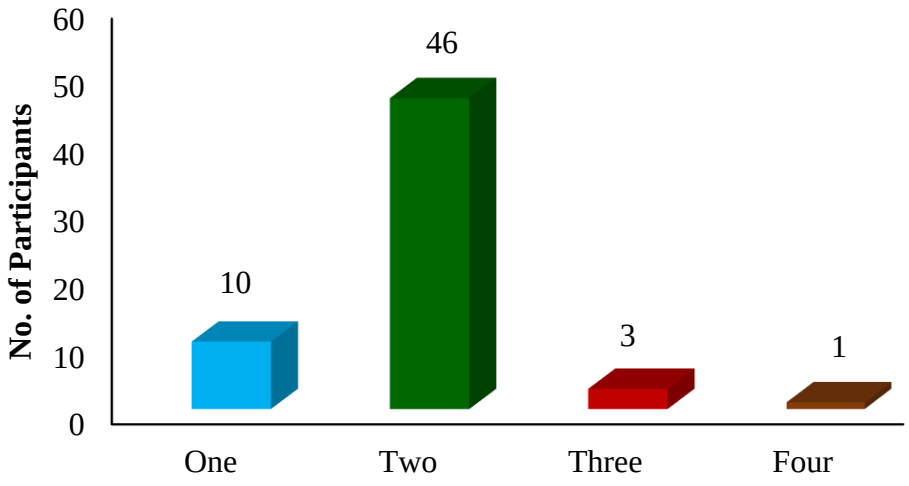


Table 4.1.8

Birth Order of Adolescents

(n=60)

S. No	Birth order of adolescents	Frequency	%
1.	First	27	45
2.	Second	31	51.6
3.	Third	1	1.7
4.	Fourth	1	1.7

The above table reveals that, 31 (51.6%) adolescents were second born, 27 (45%) were first born and 1(1.7%) were third born and 1(1.7%) was fourth born.

Figure 4.1.8

Birth Order of Adolescents

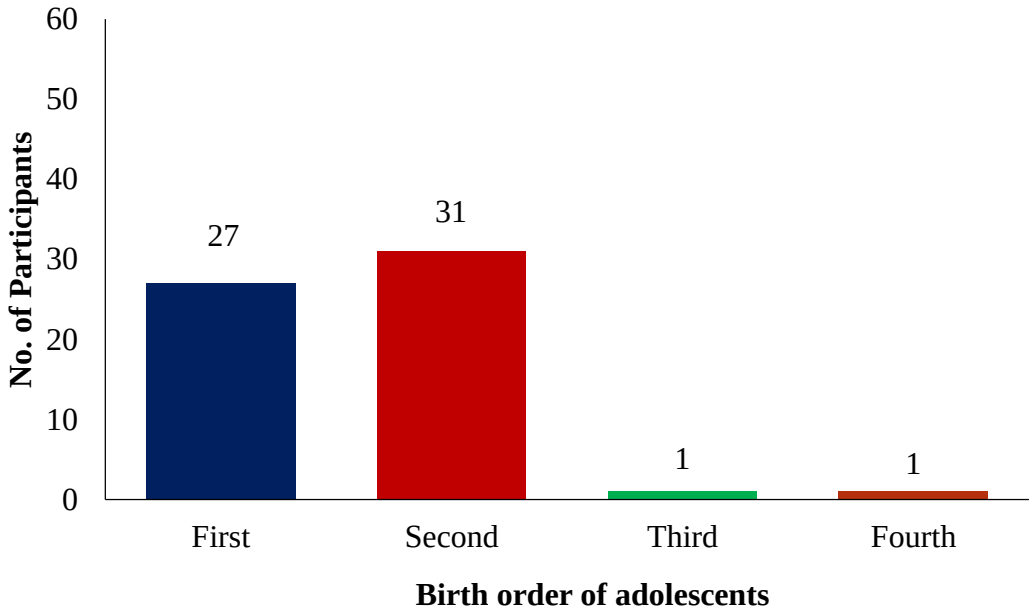


Table 4.1.9

Monthly Income of the Family

(n=60)

S. No	Monthly Income of the Family	Frequency	%
1.	< Rs.5000/-	8	13.3
2.	Rs.5001-10000/-	11	18.3
3.	Rs.10,001-15,000/-	16	26.7
4.	Rs.15,001-20,000/-	10	16.7
5.	> Rs. 20,001/-	15	25

The above table reveals that, 16 (26.7%) of them had a family monthly income of Rs.10,001-15,000, 15 (25%) of them had an income of above Rs.20, 001, 11 (18.3%) of them had a monthly income of Rs.5,001-10,000, 10 (16.7%) of them had a monthly income of Rs.15,001-20,000 and 8 (13.3%) of them had a monthly income of less than Rs.5000. s

Figure 4.1.9

Monthly Income of the Family

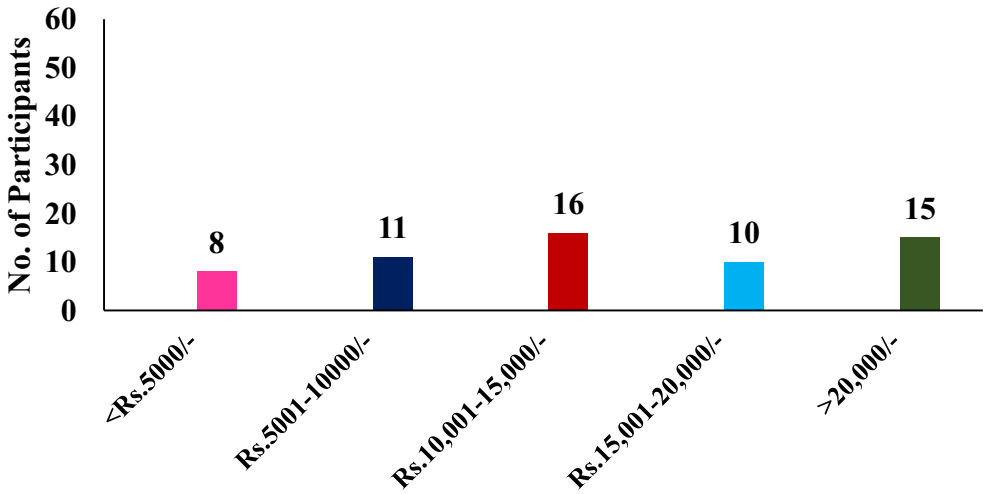


Table 4.1.10

Educational Level of Fathers

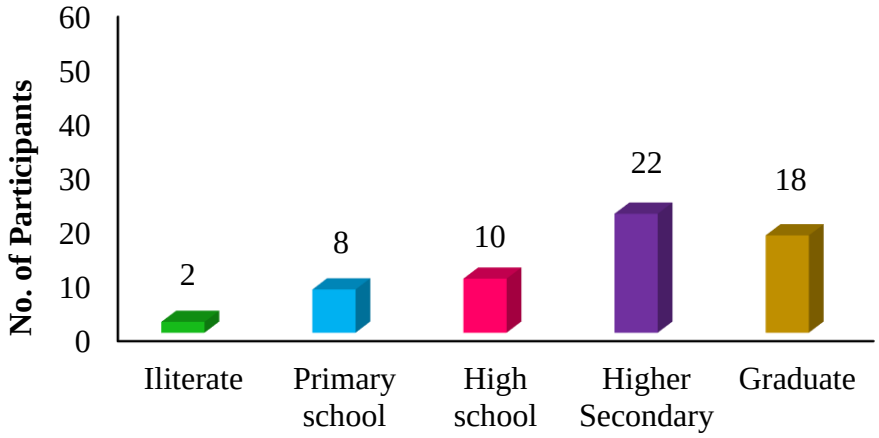
(n=60)

S. No	Educational Level of Fathers	Frequency	%
1.	Illiterate	2	3.3
2.	Primary School	8	13.3
3.	High School	10	16.7
4.	Higher Secondary	22	36.7
5.	Graduate	18	30

The above table reveals that, 22 (36.7%) adolescents father education had higher secondary education, 18 (30%) fathers were graduates, 10 (16.7%) fathers had high school education, 8 (13.3%) fathers had primary school education and 2 (3.3%) were illiterates.

Figure 4.1.10

Educational Level of Fathers



Education Level of Fathers

Table 4.1.11

Educational Level of Mothers

(n=60)

S. No	Educational level of Mothers	Frequency	%
1.	Illiterate	3	5
2.	Primary School	5	8.4
3.	High School	20	33.3
4.	Higher Secondary	14	23.3
5.	Graduate	18	30

The above table reveals that, 20 (33.3%) adolescents mother education had high school education, 18 (30%) mothers were graduates, 14 (23.3%) mothers had higher secondary education, 5 (8.4%) mothers had primary education and 3 (5%) were illiterates.

Figure 4.1.11

Educational Level of Mothers

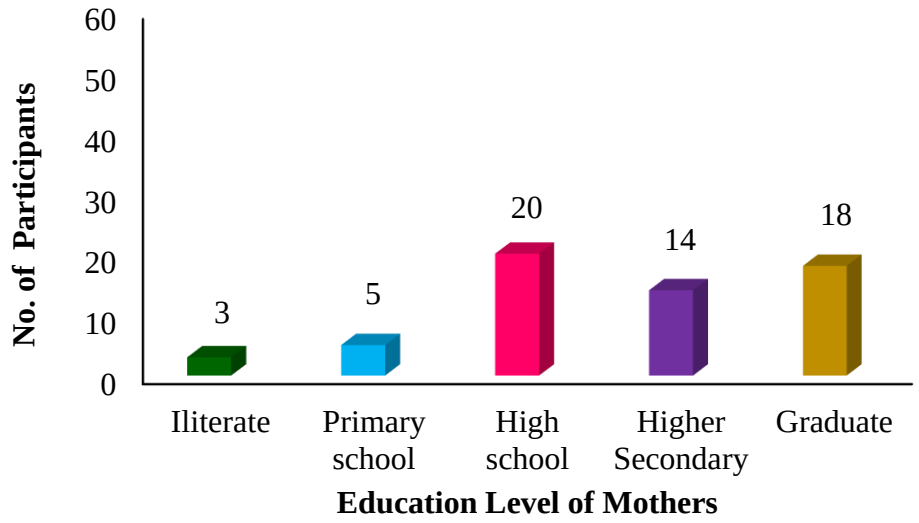


Table 4.1.12

Occupational Status of Fathers

(n=60)

S. No	Occupational status of fathers	Frequency	%
1.	Government Service	7	11.7
2.	Private Service	17	28.3
3.	Business	36	60

The above table reveals that, 36 (60%) adolescents father occupation were doing business, 17 (28.3%) were working in private service, 7 (11.7) were in government service, and 1 father had expired.

Figure 4.1.12

Occupational Status of Fathers

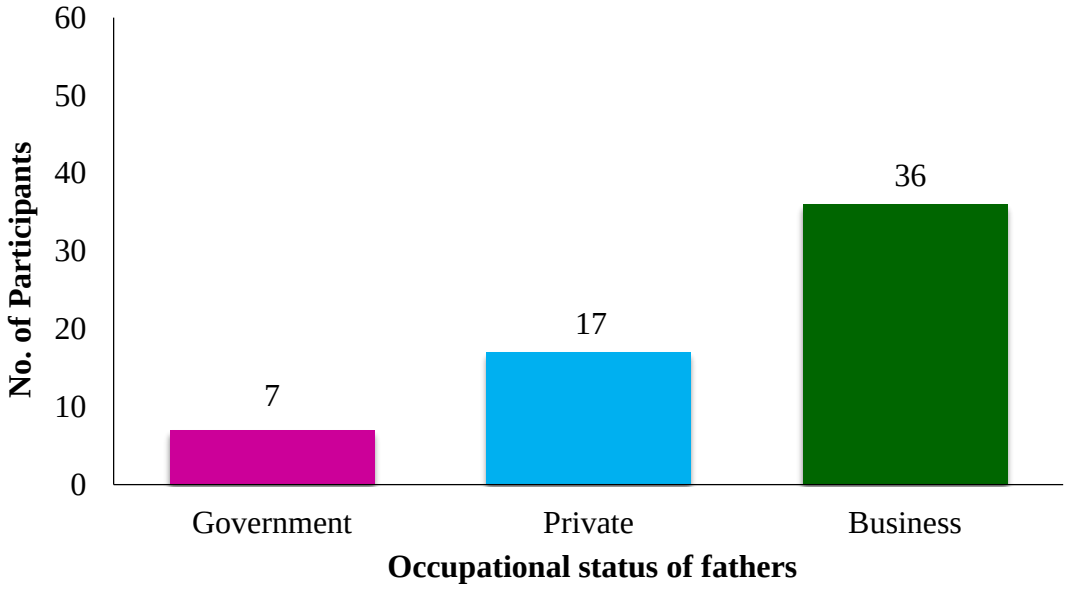


Table 4.1.13

Occupational Status of Mothers

(n=60)

S. No	Occupational status of mothers	Frequency	%
1.	House Wife	43	71.7
2.	Government Service	2	3.3
3.	Private Service	12	20
4.	Business	2	3.3
5.	Coolie	1	1.7

The above table reveals that, 43 (71.7%) adolescents mothers occupation were housewives, 12 (20%) were working in private service, 2 (3.3%) were in government service, 2 (3.3%) were doing business and 1 (1.7%) mother was a coolie worker.

Figure 4.1.13

Occupational Status of Mothers

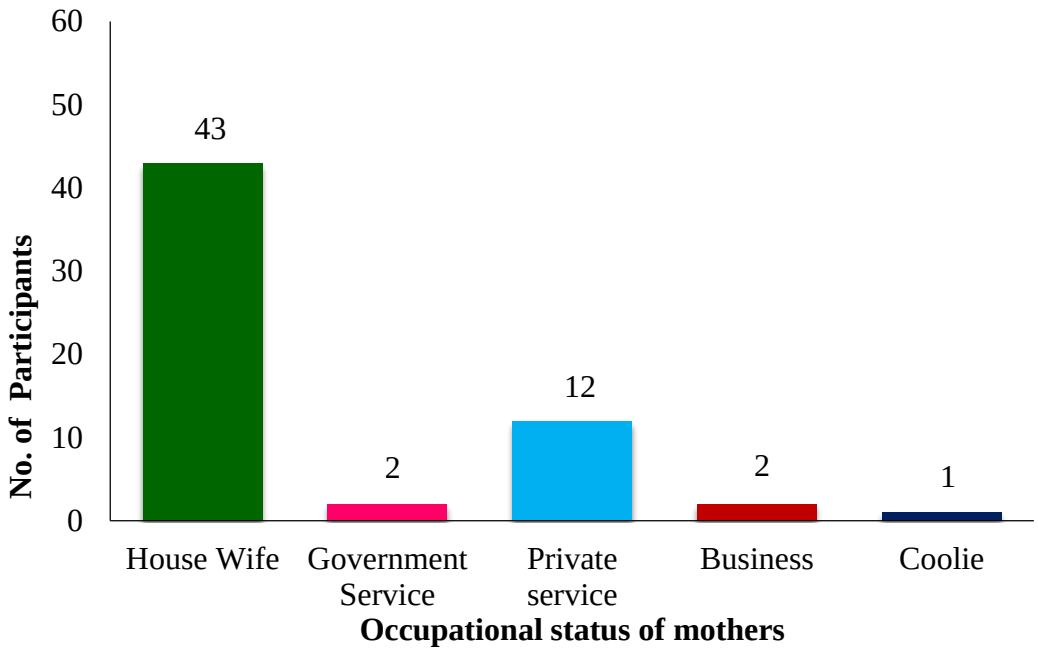


Table 4.1.14

Extracurricular Activities of Adolescents

(n=60)

S. No	Extracurricular Activities of Adolescents	Frequency	%
1.	Sports	35	58.4
2.	Arts/Handicraft	16	26.6
3.	Nil	9	15

The above table reveals that, extracurricular activity of 35 (58.4%) adolescents was sports activities, 16 (26.6%) adolescents participated in arts/handicraft and 9 (15%) did not have any extracurricular activities.

Figure 4.1.14

Extracurricular Activities of Adolescents

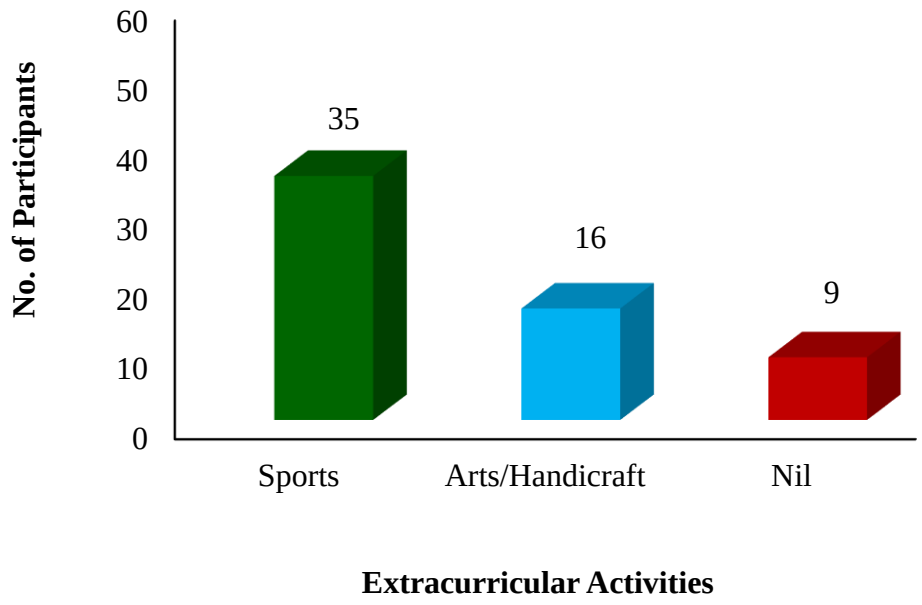


Table 4.1.15

Relaxation Techniques Followed by Adolescents

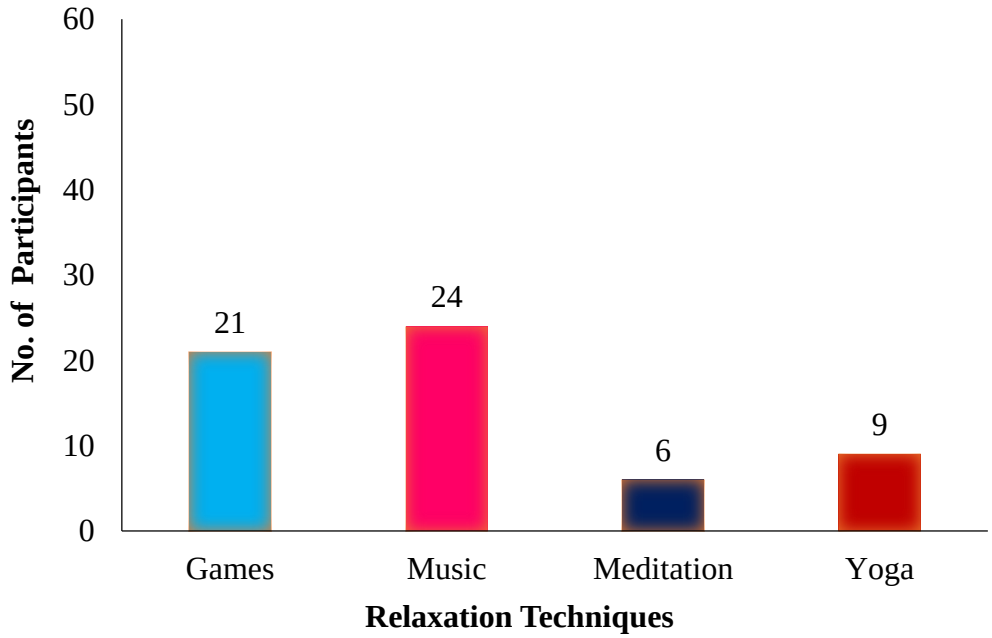
(n=60)

S. No	Relaxation Techniques Followed by Adolescents	Frequency	%
1.	Games	21	35
2.	Music	24	40
3.	Meditation	6	10
4.	Yoga	9	15

The above table reveals that, 24 (40%) adolescents used music as a relaxation technique, 21 (35%) of them played games, 9 (15) adolescents were practicing yoga and 6 (10%) adolescents were doing meditation.

Figure 4.1.15

Relaxation Techniques Followed by Adolescents



Section – II

Assessment on the Level of Social Anxiety among Adolescents

This section deals with the assessment on level of social anxiety among adolescents. The level of social anxiety was assessed using Social Anxiety Scale. The tool was developed by North Carolina Neuropsychiatry- Attention and Memory Centre, California in the year of 1988. It was a four point Likert scale which includes 20 statements to measure the level of social anxiety and the total score was categorized as, Not a Problem (0), Mild (1), Moderate (2) and Severe (3). Minimum score was 0 and maximum score was 60. Collected data were organized and presented using descriptive and inferential statistics.

Table 4.2.1

Social Anxiety Scores among Adolescents

(n=60)

S. No	Social Anxiety Scores	Pre test	
		Frequency	%
1.	0	-	-
2.	1-20	1	1.7
3.	21-40	52	86.6
4.	41-60	7	11.7

The above table depicts the pretest scores of social anxiety among adolescents. Among 60 adolescents 52 (86.6%) adolescents scored between 21 and 40, 7 (11.7%) adolescents scored between 41 and 60, and 1 (1.7%) adolescent scored between 1 and 20.

Table 4.2.2

Assessment on the Level of Social Anxiety among Adolescents

(n=60)

S. No.	Level of Social Anxiety	Frequency	%
1.	Mild	1	11.7
2.	Moderate	52	86.6
3.	Severe	7	11.7

The above table shows the level of social anxiety among adolescents. Majority of 52 (86.6%) adolescents had moderate anxiety, 7 (11.7%) had severe anxiety and 1 (1.7%) adolescent had mild anxiety.

Section III

Effect of Guided Imagery on Social Anxiety among Adolescents

This section deals with the effect of guided imagery among adolescents. The data collected were organized, analyzed and presented using descriptive and inferential statistics.

The section is presented under the following headings.

1. Social Anxiety scores among Adolescents before and after guided imagery.
2. Level of Social Anxiety among Adolescents before and after guided imagery.

Table 4.3.1

Social Anxiety Scores among Adolescents Before and After Guided Imagery

(n=60)

S. No	Social Anxiety Scores	Pre test		Post test	
		Frequency	%	Frequency	%
1.	0	0	0	2	3.3
2.	1-20	1	1.7	58	96.7
3.	21-40	52	86.6	0	0
4.	41-60	7	11.7	0	0

The above table depicts that, before intervention, 52 (86.6%) adolescents scored between 21 and 40, 7 (11.7%) adolescents scored between 41 and 60, and 1 (1.7%) adolescents scored 1 and 20. In the posttest, 58 (96.7%) scored between 1 and 20, 2 (3.3) adolescents scored zero (0) Figure 4.3.1 .

Figure 4.3.1

Social Anxiety Scores among Adolescents Before and After Guided Imagery

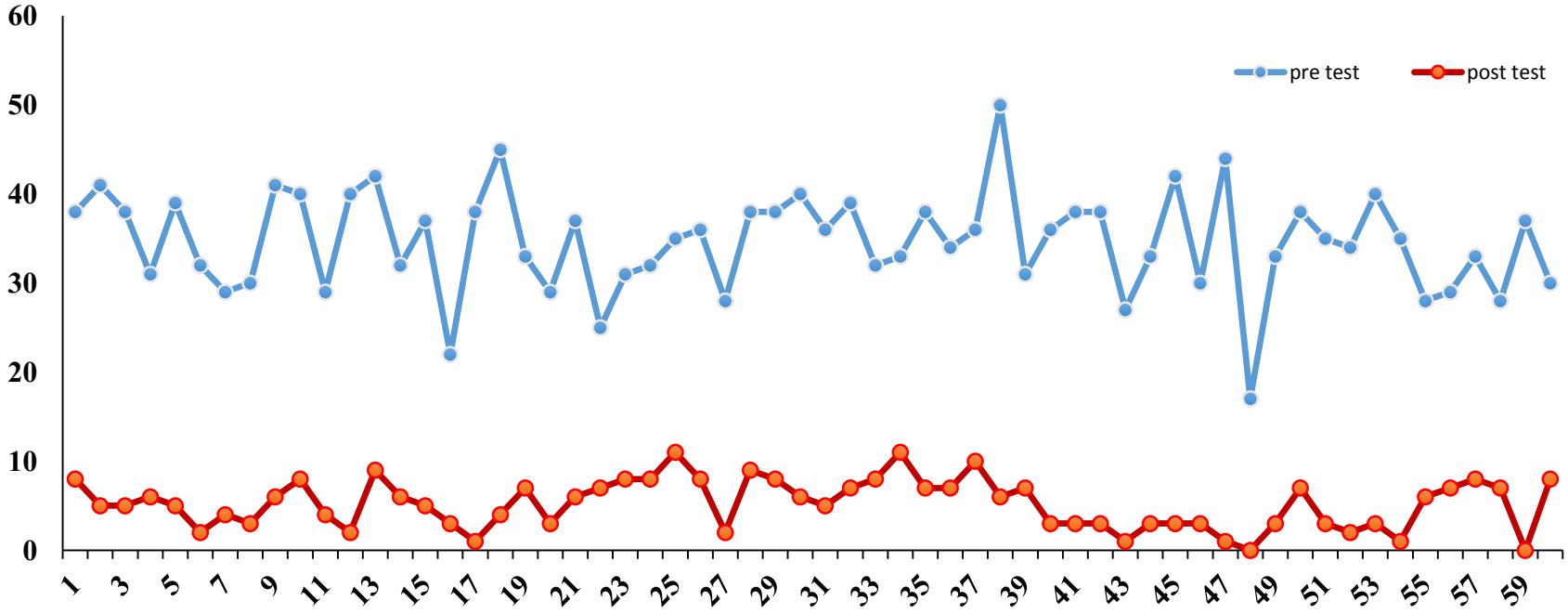


Table 4.3.2

Level of Social Anxiety among Adolescents Before and After Guided Imagery

(n=60)

Level of Social Anxiety	Pretest		Posttest	
	Frequency	%	Frequency	%
Not a Problem	-	-	2	3.3
Mild	1	1.7	58	96.7
Moderate	52	86.6	-	-
Severe	7	11.7	-	-

The above table shows the distribution of level of social anxiety before and after implementation of Guided Imagery among adolescents. Before intervention it was found that, 52 (86.6%) adolescents had moderate anxiety, 7 (11.7%) had severe anxiety and 1(1.7%) adolescent had mild anxiety. After intervention, 58 (96.7%) adolescents had mild anxiety and 2 (3.3%) adolescents did not have social anxiety.

Figure 4.3.2

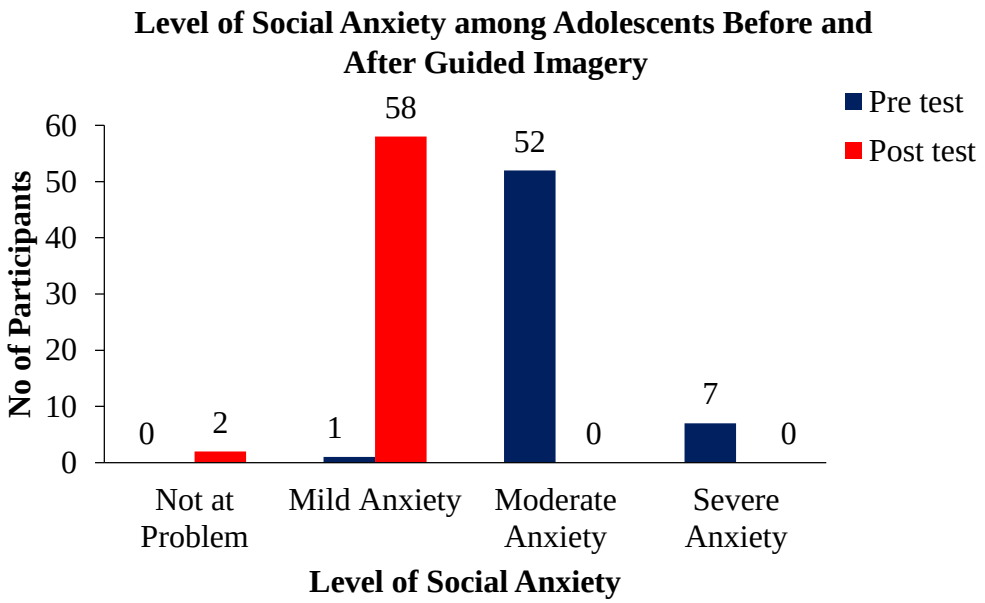


Table 4.3.3

Effect of Guided Imagery on Social Anxiety among Adolescents

(n=60)

Test	Mean	Standard Deviation	Mean difference	't' value
Before intervention	34.6	5.70	29.4	37.64***
After intervention	5.2	2.74		

*** Significance at 0.001 level

The mean scores of the level of social anxiety before and after Guided Imagery was 34.6 and 5.2 with a standard deviation of 5.70 and 2.74 respectively. The mean difference was 29.4. The calculated 't' value 37.64 was greater than the table value, at 0.001 level of significance. Thus, the hypothesis "There is a significant difference in the level of social anxiety among adolescents after implementation of guided imagery" was accepted. Hence, Guided Imagery was effective in reducing Social Anxiety among adolescents.

Section IV

Association between the Pretest Level of Social Anxiety and Selected Variables among Adolescents

Chi square test was used to find the association between level of social anxiety and selected demographic variables like age, gender, education, religion, area of residence, type of family, no of siblings, birth order of adolescents, monthly income of the family, educational level of father and mother, occupational status of father and mother, extracurricular activities, and relaxation techniques followed by adolescents.

Table 4.4.1

Association between the Pretest Levels of Social Anxiety and Selected Variables among Adolescents

(n=60)

S. No.	Demographic Variables	Category	Frequency	Level of Social Anxiety			χ^2 value	Degree of freedom (r-1)(c-1)	χ^2 Table value
				Mild	Moderate	Severe			
1.	Age in year	11 years	23	0	20	3	3.725	4	9.49
		12 years	19	0	18	1			
		13 years	18	1	14	3			
2.	Gender	Male	25	1	22	2	3.078	2	5.99
		Female	35	0	30	5			
3.	Educational level	6^{th} std	20	0	16	4	4.277	4	9.49
		7^{th} std	20	0	19	1			
		8^{th} std	20	1	17	2			
4.	Religion	Hindu	58	1	50	7	0.271	4	9.49
		Christian	1	0	1	0			
		Muslim	1	0	1	0			
5.	Area of Residence	Urban	46	1	38	7	2.81	2	5.99
		Rural	14	0	14	0			

S. No.	Demographic Variables	Category	Frequency	Level of Social Anxiety			χ^2 value	Degree of freedom (r-1)(c-1)	χ^2 Table value
				Mild	Moderate	Severe			
6.	Type of Family	Nuclear	25	0	21	4	1.164	2	5.99
		Joint	35	1	31	3			
7.	Number of siblings	One	10	0	7	3	23.33*	6	12.59
		Two	46	0	42	4			
		Three	3	1	2	0			
		Four	1	0	1	0			
8.	Birth order	First	27	1	20	6	6.783	6	12.59
		Second	31	0	30	1			
		Third	1	0	1	0			
		Fourth	1	0	1	0			
9.	Monthly income of family	Rs.<5000/-	8	0	8	0	8.907	8	15.51
		Rs.5001-10,000	11	0	9	2			
		Rs.10,001-15,000/-	16	0	12	4			
		Rs.15,001-20,000/-	10	0	9	1			
		Above 20,001/-	15	1	14	0			

S. No.	Demographic Variables	Category	Frequency	Level of Social Anxiety			χ^2 value	Degree of freedom (r-1)(c-1)	χ^2 Table value
				Mild	Moderate	Severe			
10.	Educational level of fathers	Illiterate	2	0	2	0	6.378	8	15.51
		Primary School	8	0	8	0			
		High School	10	0	10	0			
		Higher Secondary	22	1	18	3			
		Graduate	19	0	14	4			
11.	Educational level of mothers	Illiterate	3	0	3	0	3.956	8	15.51
		Primary School	5	0	5	0			
		High School	20	0	18	2			
		Higher Secondary	14	0	12	2			
		Graduate	18	1	15	3			
12.	Fathers occupational status	Government service	7	0	6	1	5.878	6	12.59
		Private service	16	0	12	4			
		Business	36	1	29	1			
13.	Mothers occupational status	House Wife	43	1	38	4	3.446	8	15.51
		Government service	2	0	2	0			
		Private service	12	0	9	3			
		Business	2	0	2	0			
		Coolie	1	0	1	0			

S. No.	Demographic Variables	Category	Frequency	Level of Social Anxiety			χ^2 value	Degree of freedom (r-1)(c-1)	χ^2 Table value
				Mild	Moderate	Severe			
14.	Extracurricular Activities	Sports	35	1	28	6	3.999	4	9.49
		Arts	16	0	16	0			
		Nil	9	0	8	1			
15.	Relaxation techniques	Games	21	0	19	2	11.589	6	12.59
		Music	24	0	21	3			
		Meditation	6	1	5	0			
		Yoga	9	0	7	2			

* Significance at 0.05 level

The above table reveals the association between the level of social anxiety among adolescents with selected variables.

The findings showed that, there is a significant association between the level of social anxiety among adolescents and the number of siblings (χ^2= 23.33) at 0.05 level of significance. Other variables like age (χ^2= 3.725), sex (χ^2=3.078), education (χ^2=4.277), religion (χ^2=0.271), area of residence (χ^2=2.81), type of family (χ^2=1.164), birth order (χ^2=6.783), monthly income of family (χ^2=8.907), educational level of father's (χ^2=6.378), educational level of mother's (χ^2=3.956), father's occupational status (χ^2=5.878), mother's occupational status (χ^2=3.446), extracurricular activities (χ^2=3.999), and relaxation techniques (χ^2=11.589) did not have a significant association on the level of social anxiety among adolescents.

RESULTS AND DISCUSSION

This chapter deals with the interpretation of the results and discussion of the findings. The study was conducted at Sri Ramakrishna Matriculation School, Coimbatore. The main aim of the study was to assess the effect of guided imagery on social anxiety among adolescents. Three hundred and twenty adolescents between the age group of 11-13 years of age studying in 6^{th}, 7^{th} and 8^{th} standards were the target population. They were divided into three strata based on the level of education. The number of adolescents in each strata were 110, 105 and 105 students respectively. Out of them, 20 students from each strata were selected proportionately using lottery method. Therefore, a total of 60 adolescents were selected for the study.

A structured questionnaire was used to assess the social anxiety before the intervention. Following that, Guided Imagery was administered for 15-20 minutes, three times a week for 4 consecutive weeks. At the end of the fourth week, posttest was done to assess the level of Social Anxiety using the same Questionnaire. The effectiveness of Guided Imagery on Social Anxiety was determined through comparing the pretest and post test scores.

The data was analyzed and the findings were discussed based on the objectives.

5.1 Findings related to Demographic Variables.

In the present study, 60 samples were included. The age distribution revealed that, out of 60 samples, 23 (38.3%) adolescents were 11 years, 19 (31.7%) adolescents were 12 years and 18 (30%) adolescents were 13 years.

Distribution on gender revealed that, 35 (58.4%) adolescents were males and 25 (41.6%) were females.

Data on the level of education showed that, 20 (33.33%) adolescents were in 6^{th} standard, 20 (33.33%) were in 7^{th} standard, and 20 (33.33%) were in 8^{th} standard.

Distribution on religion revealed that, 58 (96.6%) adolescents were hindus, 1 (1.7%) was a muslim and 1(1.7%) belonged to christian religion.

Area of residence of adolescents revealed that, 46 (76.6%) adolescents were from urban area and 14 (23.3%) were from rural area.

Type of family revealed that, 35 (58.4%) adolescents were living in a nuclear family and 25 (41.6%) were in joint family.

Number of siblings of adolescents revealed that, majority 46 (76.6%) of adolescents were having two siblings, 10 (16.6%) of them had one sibling, 3 (5%) had three siblings and 1(1.7%) adolescent had four siblings.

Birth order of adolescents revealed that, 31 (51.6%) adolescents were second born, 27 (45%) were first born, 1 (1.7%) was the third child and 1(1.7%) adolescent was the fourth child.

Monthly income of the family revealed that, 16 (26.7%) of them had a family monthly income of Rs.10,001-15,000, 15 (25%) of them had an income of above Rs.20,001, 11 (18.3%) of them had a monthly income of Rs.5,001-10,000, 10 (16.7%) of them had a monthly income of Rs.15,001-20,000 and 8 (13.3%) of them had a monthly income of less than Rs.5000.

Educational level of fathers' of adolescents revealed that, 22 (36.7%) fathers had higher secondary education, 18 (30%) of them were graduates, 10 (16.7%) of them had high school education, 8 (13.3%) fathers had primary school education and 2 (3.3%) were illiterates.

Educational level of mothers' of adolescents revealed that, 20 (33.3%) mothers had high school education, 18 (30%) mothers were graduates, 14 (23.3%) had higher secondary education, 5 (8.4%) mothers had primary education and 3 (5%) were illiterates.

Regarding occupational status of fathers' of adolescents, 36 (53.3%) of them were doing business, 17 (28.3%) were working in private service, 7 (11.7%) were in government service, and 1(1.7%) father had expired.

Regarding occupational status of mothers', majority (71.7%) adolescents mothers' were housewives, 12 (20%) were working in private service, 2 (3.3%) were in government service, 2 (3.3%) were doing business and 1 (1.7%) mother was a coolie worker.

Extracurricular activity of adolescents revealed that, more than half of the (58.4%) adolescents engaged in sports activities, 16 (26.6%) adolescents did arts/handicraft and 9 (15%) did not have any extracurricular activities.

Findings on relaxation techniques revealed that, 24 (40%) adolescents used music as a relaxation technique, 21 (35%) of them played games, 9 (15%) adolescents were practicing yoga and 6 (10%) were doing meditation.

5.2 To Assess the Level of Social Anxiety among Adolescents at a Selected School.

The level of social anxiety was assessed using Social Anxiety Scale. The tool was developed by North Carolina Neuropsychiatry - Attention and Memory Centre, California in the year of 1988. It was a four point Likert scale which included 20 statements to measure the level of social anxiety. Collected data were organized and presented using descriptive and inferential statistics.

The pretest scores of social anxiety among adolescents showed that, out of 60 adolescents, 52 (86.6%) adolescents scored between 21 and 40, 7 (11.7%) adolescents scored between 41 and 60, and 1 (1.7%) adolescents scored between 1 and 20.

In pretest, majority (86.6%) of adolescents had moderate anxiety, 7 (11.7%) had severe anxiety and 1 (1.7%) adolescent had mild anxiety. A study done among undergraduate university students revealed similar findings which were in support of the present study. Liebowitz., et al (2003) conducted a study to assess anxiety levels among undergraduate students in various faculties of a university at, Vadodara in India. The sample size was 380 and students were selected by stratified random

sampling. The data were collected using Social Phobia Inventory, Liebowtiz Social Anxiety Scale (LSAS), and Sheehan's Disability Scale. The study results showed that, majority (70%) had mild anxiety, 24% had moderate anxiety and 6% had severe anxiety.

5.3 To Evaluate the Effect of Guided Imagery on Social Anxiety among Adolescents at a Selected School.

5.3.1 Social Anxiety Scores and Level of Social Anxiety among Adolescents before and after Guided Imagery

The social anxiety scores and level of social anxiety among adolescents before intervention revealed that, 52 (86.6%) adolescents scored between 21 and 40 which was interpreted as moderate level of social anxiety, 7 (11.7%) adolescents scored between 41 and 60 which was interpreted as severe social anxiety and 1 (1.7%) scored between 1 and 20 which was a mild level of social anxiety. In the posttest, 58 (96.7%) adolescents scored between 1 and 20 which was interpreted as mild level of social anxiety, and 2 (3.3%) adolescents scored 0 which indicated that, they did not have social anxiety at all.

5.3.2 Effect of Guided Imagery on Social Anxiety among Adolescents

Paired 't' test was used to find the effect of guided imagery on social anxiety among adolescents. The mean scores of the level of social anxiety before and after Guided Imagery was 34.6 and 5.2 with a standard deviation of 5.70 and 2.74 respectively with a mean difference of 29.4. The calculated't' value 37.64 was greater than the table value, at 0.001 level of significance. Thus, the hypothesis "There is a

significant difference in the level of social anxiety among adolescents after implementation of guided imagery" was accepted. Hence it was found that, Guided Imagery was effective in reducing Social Anxiety among adolescents.

A similar study was conducted by Kavitha & Sasikala (2009) on effect of guided imagery relaxation programme in reducing the anxiety level among exam going adolescents. Forty exam going students were randomly assigned to experimental and control group. A 25 minutes audio relaxation guided imagery program was administered to students in the experimental group. There was a significant reduction in anxiety levels after guided imagery relaxation program among exam going students in the experimental group. The researchers concluded that, guided imagery was effective in lowering anxiety levels which was supportive of the findings in the present study.

5.4 To Find out the Association between the Level of Social Anxiety and Selected Variables.

Chi square test was used to find the association between level of social anxiety and selected demographic variables like age of adolescents, gender, education, religion, area of residence, type of family, number of siblings, birth order of adolescents, monthly income of the family, educational level of father and mother, occupational status of father and mother, extracurricular activities, and relaxation techniques followed by adolescents.

The findings showed that, there was a significant association between the level of social anxiety among adolescents and number of siblings of adolescents (χ^2= 23.33) at 0.05 level of significance. Other variables like age (χ^2= 3.725), sex (χ^2=3.078), education (χ^2=4.277), religion (χ^2=0.271), area of residence (χ^2=2.81), type of family (χ^2=1.164), birth order (χ^2=6.783), monthly income of family (χ^2=8.907), educational level of father's (χ^2=6.378), educational level of mother's (χ^2=3.956), occupational status of fathers (χ^2=5.878), occupational status of mothers (χ^2=3.446), extracurricular activities (χ^2=3.999), and relaxation techniques (χ^2=11.589) did not have a significant association on the level of social anxiety among adolescents.

In support of the findings in the present study, a similar study was conducted by Vankar (2009) to determine, demographic and phenomenological characteristics of social anxiety among 421 adolescents. Findings on the association among social anxiety and selected demographic variables revealed that, there was a significant association among Social anxiety and variables like age, gender and number of siblings.

SUMMARY AND CONCLUSION

This chapter summarizes the major findings, limitations, suggestions, recommendations and implications in the field of nursing education, nursing administration, nursing practice and nursing research. The study was conducted to assess the effect of guided imagery on social anxiety among adolescents at a selected school, Coimbatore.

The study was conducted at Sri Ramakrishna Matriculation School, in Coimbatore. This study was conducted with the aim of identifying the effect of guided imagery on social anxiety among adolescents. The research design used in this study was one group pretest posttest, pre experimental design. Using proportionate stratified random sampling method, the students were divided into three strata based on the level of education. Using lottery method twenty samples were selected from each strata. Therefore, a total of 60 adolescents were selected for the study. A structured questionnaire was used to assess the social anxiety before intervention. Following that, Guided Imagery was administered for 15-20 minutes, three times a week, for 4 consecutive weeks. At the end of the fourth week, posttest was done to assess the level of Social Anxiety using the same questionnaire. Paired‘t’ test was used to find out the effect of guided imagery on social anxiety among adolescents.

6.1 Major Findings of the Study

6.1.1 Findings revealed that, majority 52 (86.6%) of adolescents had moderate anxiety, 7 (11.7%) had severe anxiety and 1(1.7%) adolescent had mild social anxiety before the intervention. Findings showed that, 58 (96.7%) adolescents had mild anxiety and 2 (3.33%) adolescents did not have social anxiety after the intervention.

6.1.2 The mean score of the level of social anxiety before and after guided imagery was 34.6 and 5.2 with a standard deviation of 5.70 and 2.74 respectively. The mean difference of pre and posttest scores were 29.4.

6.1.3 Pretest and posttest social anxiety scores were compared using student 't' test. The calculated 't' value 37.64 was greater than the table value, at 0.001 level of significance. Thus, the hypothesis, "There is a significant difference in the level of social anxiety among adolescents after implementation of guided imagery" was accepted.

6.1.4 There was a significant association between the level of social anxiety among adolescents and number of siblings of adolescents (χ^2= 23.33) at 0.05 level of significance.

6.2 Limitations

6.2.1 Sample size of the study was small which limits the generalization of the study findings.

6.3 Recommendations

6.3.1 The study can be replicated with larger sample size which would facilitate more reliable results.

6.3.2 A similar study can be conducted with a control group.

6.3.3 A similar study can be conducted among hospitalized adolescents to reduce anxiety.

6.3.5 Adolescents can be encouraged to practice guided imagery daily at their home also.

6.3.6 All pediatric and school health nurses can be trained to implement guided imagery to reduce social anxiety.

6.4 Nursing Implications

The findings of the study has several implications for nursing education, nursing administration, nursing practice and nursing research.

6.4.1 Nursing Education

Guided Imagery used in the present study is proved that it can reduce the social anxiety among adolescents. Nurse educators and students need to have knowledge and awareness regarding guided imagery, as it is an effective measure to reduce social anxiety. The importance of guided imagery can also be emphasized by nurse educators and faculty members, and included in the nursing curriculum.

6.4.2 Nursing Administration

The nurse administrator can draw written policies regarding guided imagery to reduce social anxiety among adolescents. This intervention will be immensely beneficial to adolescents with anxiety who are hospitalized for various reasons. The administrators can arrange continuing nursing education program on guided imagery for all the staff in the hospital, especially for those nurses who work closely with children and adolescents.

6.4.3 Nursing Practice

Nursing researches nowadays emphasize more of interventional studies on different aspects. The present study has tested the effect of guided imagery on social anxiety among adolescents. Teachers and school health nurses working among adolescents can utilize this as evidence based practice and provide guided imagery along with other techniques to alleviate social anxiety. The adolescents can also be encouraged to practice it in their day to day life.

6.4.4 Nursing Research

The study has tested the effectiveness of guided imagery on social anxiety among adolescents. This empirical evidence can be used authentically for reducing social anxiety among adolescents. Similar studies can be undertaken for assessing the social anxiety among adolescents in different settings and providing relevant therapies to affected individuals.

6.5 Conclusion

Guided imagery is a cognitive behavioral therapy technique that is effective in addressing social anxiety disorders among adolescents. Guided Imagery has been used as treatment and prevention of anxiety, chronic stress and social anxiety in recent years. There has also been an increase in mindfulness practices in guided imagery. There are a host of mindfulness practices including relaxation techniques, meditation, and guided imagery. Hence the researcher concluded that, this intervention is an effective method of reducing social anxiety among adolescents.

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SRI RAMAKRISHNA HOSPITAL

Medical Service :
M/s. S.N.R. Sons Charitable Trust

Dr. S. ANANTH
M.B.B.S., Ph.D. M.D., ABPN (USA)
Consultant Psychiatrist,Counselor & Therapist

9.00 AM to 1.00 PM

395, Sarojini Naidu Road
Sidhapudur
COIMBATORE - 641 044
Grams : RAMHOSP
Phone : 4500706

DATE : 6/6/15

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Miss. REVATHI. M, I Year M.Sc (NURSING), COLLEGE OF NURSING, Sri Ramakrishna Institute of Paramedical Sciences (SRIPMS), Coimbatore was coached on GUIDED IMAGERY from 27.04.2015 to 02.05.2015.

Place: Coimbatore

Date: 6/6/15

SRI RAMAKRISHNA HOSPITAL CBE-44

Signature

Dr. S. ANANTH, M.B.B.S., Ph.D., M.D., ABPN (USA)
Consultant Psychiatrist
Sri Ramakrishna Hospital
Coimbatore - 641 044
Reg. No: 49945

Sri Ramakrishna Hospital

Medical Service : M/s. S.N.R. SONS CHARITABLE TRUST

SRI RAMAKRISHNA HOSPITAL ETHICAL COMMITTEE

395, SAROJINI NAIDU ROAD, SIDHAPUDUR, COIMBATORE - 641 044.
Phone : 0422 - 4500000, 4500201, Grams :"RAMHOSP" Fax : 0422-2240521
E-mail : dean@snrsonstrust.org, website : sriramakrishnahospital.com

Ethics Committee Registration No. ECR/690/Inst/TN/2014

22nd June 2015

Ms.Revathi.M,
IInd year M.Sc., Nursing,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore 641 044.

Dear Ms.Revathi.M,

The Institutional Human Ethics Committee of Sri Ramakrishna Hospital reviewed and discussed your application to conduct the study proposal entitled "Effect of Guided Imagery on Social Anxiety among Adolescents at selected school, Coimbatore".

The following documents were reviewed:

- Study Protocol
- Study procedure
- Informed consent document in Tamil & English
- Investigator study Undertaking
- Draft Case Report Form
- Investigator's current CV

The following members of the ethics committee were present at the meeting held on 17.06.2015 at 3.00pm at New Auditorium, Sri Ramakrishna Hospital Campus, Coimbatore.

Sl No	Members name	Qualification	Designation in Ethics Committee	address	Affiliation to the Institution (Yes / No)
1.	Dr.P.Sukumaran	MS,M.Ch., FIACS.,	EC Member Secretary	Dean Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur, Coimbatore	Yes

Sri Ramakrishna Hospital

Medical Service : M/s. S.N.R. SONS CHARITABLE TRUST

SRI RAMAKRISHNA HOSPITAL ETHICAL COMMITTEE

395, SAROJINI NAIDU ROAD, SIDHAPUDUR, COIMBATORE - 641 044.
Phone : 0422 - 4500000, 4500201, Grams :"RAMHOSP" Fax : 0422-2240521
E-mail : dean@snrsonstrust.org, website : sriramakrishnahospital.com

Ethics Committee Registration No. ECR/690/Inst/TN/2014

Ethics Committee Chairman

Dr. P. M. Murali, M.Sc.,Ph.D.,D.Sc.,

Ethics Committee Member Secretary

Dr. P. Sukumaran, MS.,M.Ch.,FIACS.,

Ethics Committee Members

Dr. MohanKumar T. MD.,AB.,D.Sc., DPPR.,FCCP.,
Clinician

Dr. R. Lalitha, DGO.,
Clinician

Dr. S. Rajagopal, M.Ch.,
Clinician

Dr. M. Rangasamy, B.E.,M.Sc.(Engg.)Ph.D.,
Lay Person

Dr. T.K. Ravi, M.Pharm.,Ph.D.,
Scientific Member

Dr. N. Paramasivan, MBBS., MD.,(Pharmacology)
Basic Medical Scientist

Mr. P. R. Ramakrishnan, B.Com.,B.L.,
Legal Expert

Mrs. Mythili Padmanabhan, M.Sc.,
Social Scientist

2	Dr.T.Mohan Kumar	MD., D.Sc., AB., DPPR. FCCP.	Clinician	Sr.Consultant Pulmonologist Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
3.	Dr.S.Rajagopal	M.Ch.,	Clinician	Sr.Neuro Surgeon Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
4.	Dr.R.Lalitha	DGO.,(OG)	Clinician	Sr. Gynecologist Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
5.	Dr.T.K.Ravi	M.Pharm. Ph.D	Scientific Member	Principal Sri Ramakrishna College of Pharmacy, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
6.	Dr.N.Paramasivan	MBBS.,MD.	Basic Medical Scientist	Prof. of Pharmacology & HOD Sri Ramakrishna Dental College & Hospital, Coimbatore.	Yes
7.	Mr.P.R.Ramakrishnan	B.Com.,BL.	Legal Expert	Advocate No.2, Ramar Kovil St., Ramnagar, Coimbatore-9	No
8.	Mrs.Mythili Padmanabhan	M.Sc., (Psychology	Social Scientist	Correspondent Vriksha 5/14, 2nd Street, G.G.Avenue, Coimbatore-46	No

Ethics Committee has granted approval for the study to be conducted at Sri Ramakrishna Hospital.

The ethics committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

Yours Truly,

Member Secretary,
Institutional Human Ethics Committee,

Dr. P. SUKUMARAN, M.S.,M.Ch.,FIACS.,
Dean
SRI RAMAKRISHNA HOSPITAL,
395, Sarojini Naidu Road,
Sidhapudur, Coimbatore-641 044.

PERMISSION LETTER

From

Revathi. M,

M.Sc (Nursing) I Year,

College Of Nursing, SRIPMS,

Coimbatore.

To

THE PRINCIPAL,

SRI RAMAKRISHNA MATRICULATION HIGHER SECONDARY SCHOOL,

COIMBATORE.

Through

The Principal,

College Of Nursing, SRIPMS,

Coimbatore.

Respected Sir/Madam,

Subject: Requesting permission to conduct research study

I am Ms. Revathi. M, doing my I[st] year M.Sc Nursing in College of nursing, Sri Ramakrishna Institute of Paramedical Sciences. As a part of my M.Sc Nursing Program, I have undertaken the following study for my research **"EFFECT OF GUIDED IMAGERY ON SOCIAL ANXIETY AMONG ADOLESCENTS IN SELECTED SCHOOL,COIMBATORE".** SoI kindly request you to give permission to conduct the study in your school.

Thanking you,

Coimbatore:

yours sincerely,

(Revathi. M)

Date: 4/6/15

PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Time - 10.00 – 11.30 AM

Mrs. B. Vanaja
Pl. do the needful.

8/6/15

REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND CONTENT

From

Ms. Revathi. M,

M. Sc (Nursing) I Year,

College Of Nursing, SRIPMS,

Coimbatore.

To

Dr. Lakshmanan, MA, M.Phil, PhD

Clinical Psychologist

Coimbatore - 12

Through

The Principal,

College Of Nursing, SRIPMS,

Coimbatore.

Respected Sir/Madam,

Subject: Requesting permission to validate the tool and content.

I am Ms. Revathi. M, doing my I[st] year M. Sc Nursing in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences. As a part of my M. Sc Nursing Program, I have undertaken the following study for my research "**EFFECT OF GUIDED IMAGERY ON SOCIAL ANXIETY AMONG ADOLESCENTS IN SELECTED SCHOOL, COIMBATORE".** The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore,

N. LAKSHMANAN. MA, M.Phil.
Clinical Psychologist
RCI. Reg. No A-25341.
MADHU HARI COUNSELLING CENTRE
27, COWLEY BROWN ROAD
R.S. PURAM, COIMBATORE-641 002.
Cell: 98420-06144

for PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

(Revathi .M)

REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND CONTENT

From

Ms. Revathi. M,
M. Sc (Nursing) I Year,
College Of Nursing, SRIPMS,
Coimbatore.

To

Dr. K. Jeyabarathi, M.Sc(N), Ph.D.,
Professor
PPG College of Nursing
Saravanampatti
Coimbatore

Through

The Principal,

College Of Nursing, SRIPMS,

Coimbatore.

Respected Sir/Madam,

Subject: Requesting permission to validate the tool and content.

I am Ms. Revathi. M, doing my I[st] year M. Sc Nursing in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences. As a part of my M. Sc Nursing Program, I have undertaken the following study for my research **"EFFECT OF GUIDED IMAGERY ON SOCIAL ANXIETY AMONG ADOLESCENTS IN SELECTED SCHOOL, COIMBATORE".** The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore,

Date: 28/4/15

Yours sincerely,

(Revathi .M)

FOR PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

P.P.G. COLLEGE OF NURSING COIMBATORE-35

REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND CONTENT

From

Ms. Revathi. M,

M. Sc (Nursing) I Year,

College Of Nursing, SRIPMS,

Coimbatore.

To Mrs.Ruby Anitha.D
Asst. Professor
Ganga College of Nursing
Coimbatore

Through

The Principal,

College Of Nursing, SRIPMS,

Coimbatore.

Respected Sir/Madam,

Subject: Requesting permission to validate the tool and content.

I am Ms. Revathi. M, doing my I[st] year M. Sc Nursing in College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences. As a part of my M. Sc Nursing Program, I have undertaken the following study for my research **"EFFECT OF GUIDED IMAGERY ON SOCIAL ANXIETY AMONG ADOLESCENTS IN SELECTED SCHOOL, COIMBATORE".** The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore,

Date: 22/4/16

FOR PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

(Revathi .M)

(RUBY ANITHA-D)

PERMISSION LETTER

From

Revathi. M,

M.Sc (Nursing) I Year,

College Of Nursing, SRIPMS,

Coimbatore.

To

THE PRINCIPAL,

SIDDHA NAIDU MATRICULATION SCHOOL,

COIMBATORE - 44

Through

The Principal,

College Of Nursing, SRIPMS,

Coimbatore.

Respected Sir/Madam,

Subject: Requesting permission to conduct research study

I am Ms. Revathi. M, doing my I[st] year M.Sc Nursing in College of nursing, Sri Ramakrishna Institute of Paramedical Sciences. As a part of my M.Sc Nursing Program, I have undertaken the following study for my research **"EFFECT OF GUIDED IMAGERY ON SOCIAL ANXIETY AMONG ADOLESCENTS IN SELECTED SCHOOL,COIMBATORE''**.SoI kindly request you to give permission to conduct the study in your school.

Thanking you,

Coimbatore:

yours sincerely,

(Revathi. M)

Date: 4/6/15

PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641044

Monday to Friday.
6, 7, 8th
3:05 to 3:50pm

QUESTIONNAIRE TO ASSESS SOCIAL ANXIETY AMONG ADOLESCENTS

Section – A

Demographic variable: Sample No:

1. Age of adolescents

   a) 11 years b) 12 years c) 13 years

2. Gender

   a) Male b) Female

3. Education

   a) 6^{th} standard b) 7^{th} standard c) 8^{th} standard

4. Religion

   a) Hindu b) Christian c) Muslim

5. Area of Residence

   a) Urban b) Rural

6. Type of family

   a) Nuclear family b) Joint family

7. Number of Siblings

   a) One b) Two c) Three d) Four

8. Birth order of adolescents

   a) First b) Second c) Third d) Fourth

9. Monthly family income

a) Rs. <5000 b) Rs.5001-10,000 c) Rs.10, 001-15,000

d) Rs.15, 001-20,000 e) Above 20,000

10. Educational level of father

a) Illiterate b) Primary school c) High school

d) Higher secondary e) Graduate

11. Educational level of mother

a) Illiterate b) Primary school c) High school

d) Higher secondary e) Graduate

12. Occupational status of father

a) Government Service b) Private Service

c) Business d) Coolie

13. Occupational status of mother

a) House wife b) Government Service

c) Private Service d) Business e) Coolie

14. Extracurricular Activities

a) Sports b) Arts/Handicraft c) Nil

15. Relaxation techniques followed

a) Games b) Music c) Meditation d) Yoga

SOCIL ANXIETY SCALE FOR ADOLESCENTS

Instruction:

Pick out the one answer that best describes the way you have been feeling during the past week, including today. Circle the number of the correct answer. Please do not choose more than one number for each statement. Respond to each situation as best you can: if it's not a problem at all; if it's a mild problem, that is bothersome but doesn't interfere with daily activities; or a moderate problem, that does interfere with daily activities; or a severe problem, that makes it very hard to have a normal day at all.

During the past week I have had problems with…	**Not a Problem**	**Mild**	**Moderate**	**Severe**
1. Talking to classmates or other people on the telephone				
2. Participating in work groups in the classroom				
3. Eating in front of other people				
4. Asking a grownup, or somebody I do not know very well, for help				
5. Being called on to answer, or to present in class				
6. Going to parties or dances or other school activities				
7. Writing on the blackboard in front of other kids				
8. Talking with other kids I don't know very well				
9. Starting a conversation with people I don't know well				
10. Using a public bathroom				

During the past week I have had problems with…	Not a Problem	Mild	Moderate	Severe
11. Going into a class or another room when other people are already seated				
12. Having people pay close attention to me, or being the center of attention				
13. Asking questions in class				
14. Answering questions in class				
15. Reading out loud in class				
16. Saying “no” to other people when they ask me to do something				
17. Telling other people that I disagree with them, or that I am angry with them				
18. Looking at people in the eyes				
19. Joining a new club or organization				
20. Meeting new people or strangers				

ANNEXURE I

Analysis on Effect of guided imagery on social anxiety among adolescents

Paired "t" test was used to find the effect of guided imagery on social anxiety among adolescents.

$$t = \frac{\overline{d}}{SE}$$

Where,

SE (Standard Error) $= \frac{SD}{\sqrt{n}}$

SD (Standard Deviation) $= \sqrt{\frac{\Sigma D^2 \ - \frac{(\Sigma D)^2}{n}}{n-1}}$

$\overline{d}$ = Mean difference between the pretest and posttest level social anxiety

ΣD = sum of Mean difference between the pretest and posttest level of social anxiety

ΣD^2 = Sum of square of Mean difference between the pretest and posttest level of social anxiety

n = Number of samples

Standard Deviation $= \sqrt{\frac{\Sigma D^2 - \frac{(\Sigma D)^2}{n}}{n-1}} = \sqrt{\frac{54{,}260 - \frac{(1768)^2}{60}}{60-1}}$

$= \sqrt{\frac{54{,}260 - 52{,}097}{59}}$

SD $= 6.05$

$\bar{d}$ $= \frac{\Sigma D}{n} = \frac{1768}{60} = 29.45$

SE $= \frac{SD}{\sqrt{n}} = \frac{6.05}{\sqrt{60}} = \frac{6.05}{7.745} = 0.781$

t $= \frac{\bar{d}}{SE} = \frac{29.45}{0.781}$

t = 37.64

Pretest and posttest level of social anxiety among adolescents

Sample No	Pretest (X_1)	Post test (X_2)	$X_1-X_2 = D$	D^2
1	38	8	30	900
2	41	5	36	1296
3	38	5	33	1089
4	31	6	25	625
5	39	5	34	1156
6	32	2	30	900
7	29	4	25	625
8	30	3	27	729
9	41	6	35	1225
10	40	8	32	1024
11	29	4	25	625
12	40	2	38	1444
13	42	9	33	1089
14	32	6	26	676
15	37	5	32	1024
16	22	3	19	361
17	38	1	37	1369
18	45	4	41	1681
19	33	7	26	676
20	29	3	26	676
21	37	6	31	961
22	25	7	18	324

Sample No	Pretest (X_1)	Post test (X_2)	$X_1-X_2 = D$	D^2
23	31	8	23	529
24	32	8	24	576
25	35	11	24	576
26	36	8	28	784
27	28	2	26	676
28	38	9	29	841
29	38	8	30	900
30	40	6	34	1156
31	36	5	31	961
32	39	7	32	1024
33	32	8	24	576
34	33	11	22	484
35	38	7	31	961
36	34	2	32	1024
37	36	10	26	676
38	50	6	44	1936
39	31	7	24	576
40	36	3	33	1089
41	38	3	35	1225
42	38	3	35	1225
43	27	1	26	676
44	33	3	30	900
45	42	3	39	1521

Sample No	**Pretest (X_1)**	**Post test (X_2)**	**X_1-X_2 = D**	**D^2**
46	30	3	27	729
47	44	1	43	1849
48	17	0	17	289
49	33	3	30	900
50	38	7	31	961
51	35	3	32	1024
52	34	2	32	1024
53	40	3	37	1369
54	35	1	34	1156
55	28	6	22	484
56	29	7	22	484
57	33	8	25	625
58	28	7	21	441
59	37	0	37	1369
60	30	8	22	484
			1768	54260

ANNEXURE II

Chi Square test analysis between the pretest level of social anxiety and selected demographic variables among adolescents.

Chi-Square test was used to check the association between the pretest level of Social Anxiety and selected demographic variables.

$$\chi^2 = \sum \frac{[(O-E)]^2}{E}$$

Where,

O = Observed value in each category

E = Expected value in corresponding category

E = $\frac{RT \times CT}{N}$

RT = Row total

CT = Column total

n = Number of samples

ANNEXURE II – 1

Chi square test analysis between the pretest level of social anxiety and age among adolescents

Age	Mild	Moderate	Severe	TOTAL
11 years	0	20	3	23
12 years	0	18	1	19
13 years	1	14	3	18
TOTAL	1	52	7	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**O – E**	**$(O-E)^2$**	$\frac{[(O-E)]^2}{E}$
0	$E_0=\frac{23\times1}{60}$	0.38	-0.38	0.144	0.378
0	$E_0=\frac{19\times1}{60}$	0.31	-0.31	0.096	0.309
1	$E_1=\frac{18\times1}{60}$	0.3	0.7	0.49	1.633
20	$E_{20}=\frac{23\times52}{60}$	19.9	0.1	0.01	0.000
18	$E_{18}=\frac{19\times52}{60}$	16.4	1.6	2.56	0.156
14	$E_{14}=\frac{18\times52}{60}$	15.6	-1.6	2.56	0.164
3	$E_3=\frac{23\times7}{60}$	2.68	0.32	0.102	0.038
1	$E_1=\frac{19\times7}{60}$	2.21	-1.21	1.464	0.662
3	$E_3=\frac{18\times7}{60}$	2.1	0.9	0.81	0.385
Σx^2					3.725

ANNEXURE II-2

Chi Square test analysis between the pretest level of social anxiety and gender among adolescents

Gender	Mild	Moderate	Severe	TOTAL
Male	1	22	2	25
Female	0	30	5	35
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
1	$E_1=\frac{25\times1}{60}$	0.41	0.59	0.348	2.485
0	$E_0=\frac{35\times1}{60}$	0.58	-0.58	0.336	0
22	$E_{22}=\frac{25\times52}{60}$	21.6	0.4	0.16	0.007
30	$E_{30}=\frac{35\times52}{60}$	30.3	-0.3	0.09	0.003
2	$E_2=\frac{25\times7}{60}$	2.91	-0.91	0.828	0.414
5	$E_5=\frac{35\times7}{60}$	4.08	0.92	0.846	0.169
Σx^2					3.078

ANNEXURE II-3

Chi Square test analysis between the pretest level of social anxiety and educational level of adolescents

Educational level of adolescents	Mild	Moderate	Severe	TOTAL
6 std	0	16	4	20
7 std	0	19	1	20
8 std	1	17	2	20
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
0	$E_1=\frac{20\times1}{60}$	0.33	-o.33	0.108	0.327
16	$E_{16}=\frac{20\times52}{60}$	17.3	-1.3	1.69	0.097
4	$E_4=\frac{20\times7}{60}$	2.33	1.67	2.78	1.193
0	$E_0=\frac{20\times1}{60}$	0.33	-0.33	0.108	0.327
19	$E_{19}=\frac{20\times52}{60}$	17.3	1.7	2.89	0.167
1	$E_1=\frac{20\times7}{60}$	2.33	-1.33	1.768	0.758
1	$E_1=\frac{20\times1}{60}$	0.33	0.67	0.448	1.357
17	$E_{17}=\frac{20\times52}{60}$	17.3	-0.3	0.09	0.005
2	$E_2=\frac{20\times7}{60}$	2.33	-0.33	0.108	0.046
Σx^2					4.29

ANNEXURE II-4

Chi Square test analysis between the pretest level of social anxiety and Religion among adolescents

Religion	Mild	Moderate	Severe	TOTAL
Hindu	1	50	7	58
Christian	0	1	0	1
Muslim	0	1	0	1
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
1	$E_1=\frac{58\times1}{60}$	0.96	0.04	0.001	0.001
50	$E_{50}=\frac{58\times52}{60}$	50.2	-0.2	0.04	0.000
7	$E_7=\frac{58\times7}{60}$	6.76	0.24	0.057	0.008
0	$E_0=\frac{1\times1}{60}$	0.01	-0.01	0.000	0
1	$E_1=\frac{1\times52}{60}$	0.86	0.14	0.019	0.022
0	$E_0=\frac{1\times7}{60}$	0.11	-0.11	0.012	0.109
0	$E_0=\frac{1\times1}{60}$	0.01	-0.01	0.000	0
1	$E_1=\frac{1\times52}{60}$	0.86	0.14	0.019	0.022
0	$E_0=\frac{1\times7}{60}$	0.11	-0.11	0.012	0.109
Σx^2					0.271

ANNEXURE II-5

Chi Square test analysis between pretest level of social anxiety and Area of Residence among adolescents

Area of Residence	Mild	Moderate	Severe	TOTAL
Urban	1	38	7	46
Rural	0	14	0	14
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
1	$E_1=\frac{46\times1}{60}$	0.76	0.24	0.057	0.075
38	$E_{38}=\frac{46\times52}{60}$	39.8	-1.8	3.24	0.081
7	$E_7=\frac{46\times7}{60}$	5.36	1.64	2.689	0.501
0	$E_0=\frac{14\times1}{60}$	0.23	-0.23	0.052	0.226
14	$E_{14}=\frac{14\times52}{60}$	12.1	1.9	3.61	0.298
0	$E_0=\frac{14\times7}{60}$	1.63	-1.63	2.656	1.629
Σx^2					2.81

ANNEXURE II-6

Chi Square test analysis between pretest level of social anxiety and Type of Family among adolescents

Type of Family	Mild	Moderate	Severe	TOTAL
Nuclear Family	0	21	4	25
Joint Family	1	31	3	35
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
0	$E_0=\frac{25\times1}{60}$	0.41	-0.14	0.168	0.409
21	$E_{21}=\frac{25\times52}{60}$	21.6	-0.6	0.36	0.016
4	$E_4=\frac{25\times7}{60}$	2.91	1.09	1.188	0.408
1	$E_1=\frac{35\times1}{60}$	0.58	0.42	0.176	0.304
31	$E_{31}=\frac{35\times52}{60}$	30.3	0.7	0.49	0.016
3	$E_3=\frac{35\times7}{60}$	4.08	-1.08	1.166	0.285
Σx^2					1.438

ANNEXURE II-7

Chi Square test analysis between the pretest level of social anxiety and number of siblings of adolescents

Number of siblings	Mild	Moderate	Severe	TOTAL
One	0	7	3	10
Two	0	42	4	46
Three	1	2	0	3
Four	0	1	0	1
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
0	$E_0=\frac{10\times1}{60}$	0.16	-0.16	0.025	0.156
7	$E_7=\frac{10\times52}{60}$	8.66	-1.66	2.755	0.138
3	$E_3=\frac{10\times7}{60}$	1.16	1.84	3.385	2.918
0	$E_0=\frac{46\times1}{60}$	0.76	-0.74	0.574	0.719
42	$E_{42}=\frac{46\times52}{60}$	39.8	2.2	4.84	0.121
4	$E_4=\frac{46\times7}{60}$	5.36	-1.36	1.849	0.345
1	$E_1=\frac{3\times1}{60}$	0.05	0.95	0.902	18.04
2	$E_2=\frac{3\times52}{60}$	2.6	-0.6	0.36	0.138
0	$E_0=\frac{3\times7}{60}$	0.35	-0.35	0.122	0.348
0	$E_0=\frac{1\times1}{60}$	0.01	-0.01	0.0001	0.1
1	$E_1=\frac{1\times52}{60}$	0.86	0.14	0.019	0.022
0	$E_0=\frac{1\times7}{60}$	0.11	-0.11	0.012	0.109
Σx^2					23.324

ANNEXURE II-8

Chi Square test analysis between the pretest level of social anxiety and birth order among adolescents

Birth order of adolescents	Mild	Moderate	Severe	TOTAL
First	1	20	6	27
Second	0	30	1	31
Third	0	1	0	1
Fourth	0	1	0	1
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
1	$sE_1=\frac{27\times1}{60}$	0.45	0.55	0.302	0.671
20	$E_{20}=\frac{27\times52}{60}$	23.4	-3.4	11.56	0.494
6	$E_6=\frac{27\times7}{60}$	3.15	2.85	8.122	2.578
0	$E_0=\frac{31\times1}{60}$	0.51	-0.51	0.260	0.509
30	$E_{30}=\frac{31\times52}{60}$	26.8	3.2	10.24	0.382
1	$E_4=\frac{31\times7}{60}$	3.61	-2.61	6.812	1.887
0	$E_0=\frac{1\times1}{60}$	0.01	-0.01	0.000	0
1	$E_1=\frac{1\times52}{60}$	0.86	0.14	0.019	0.022
0	$E_0=\frac{1\times7}{60}$	0.11	-0.11	0.012	0.109
0	$E_0=\frac{1\times1}{60}$	0.01	-0.01	0.000	0
1	$E_1=\frac{1\times52}{60}$	0.86	0.14	0.019	0.022
0	$E_0=\frac{1\times7}{60}$	0.11	-0.11	0.012	0.109
Σx^2					6.783

ANNEXURE II-9

Chi Square test analysis between the pretest level of social anxiety and monthly income of the family among adolescents

Monthly Family Income	Mild	Moderate	Severe	TOTAL
Rs.<5000/-	0	8	0	8
Rs.5000-10,000/-	0	9	2	11
Rs.10,000-15,000/-	0	12	4	16
Rs.15,000-20,000/-	0	9	1	10
Above 20,000/-	1	14	0	15
TOTAL	1	52	7	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**O – E**	**$(O-E)^2$**	**$\frac{[(O-E)]^2}{E}$**
0	$E_0=\frac{8\times1}{60}$	0.13	-0.13	0.016	0.123
8	$E_8=\frac{8\times52}{60}$	6.93	1.07	1.144	0.165
0	$E_0=\frac{8\times7}{60}$	0.93	-0.93	0.864	0.929
0	$E_0=\frac{11\times1}{60}$	0.18	-0.18	0.032	0.177
9	$E_9=\frac{11\times52}{60}$	9.53	-0.53	0.280	0.029
2	$E_2=\frac{11\times7}{60}$	1.28	0.72	0.518	0.404
0	$E_0=\frac{16\times1}{60}$	0.26	-0.26	0.067	0.257
12	$E_{12}=\frac{16\times52}{60}$	13.8	-1.8	3.24	0.234
4	$E_4=\frac{16\times7}{60}$	1.86	2.14	4.579	2.461
0	$E_0=\frac{10\times1}{60}$	0.16	-0.16	0.025	0.021
9	$E_9=\frac{10\times52}{60}$	8.66	0.34	0.115	0.013
1	$E_1=\frac{10\times7}{60}$	1.16	-0.16	0.025	0.021
1	$E_1=\frac{15\times1}{60}$	0.25	0.75	0.562	2.248
14	$E_{14}=\frac{15\times52}{60}$	13	1	1	0.076
0	$E_0=\frac{15\times7}{60}$	1.75	-1.75	3.062	1.749
Σx^2					8.907

ANNEXURE II-10

Chi Square test analysis between the pretest level of social anxiety and educational level of fathers among adolescents

Educational level of fathers	Mild	Moderate	Severe	TOTAL
Illiterate	0	2	0	2
Primary school	0	8	0	8
High school	0	10	0	10
Higher secondary	1	18	3	22
Graduate	0	14	4	18
TOTAL	1	52	7	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**O – E**	**$(O-E)^2$**	**$\frac{[(O-E)]^2}{E}$**
0	$E_0=\frac{2\times1}{60}$	0.03	-0.03	0.000	0
2	$E_2=\frac{2\times52}{60}$	1.73	0.27	0.072	0.041
0	$E_0=\frac{2\times7}{60}$	0.23	-0.23	0.052	0.226
0	$E_0=\frac{8\times1}{60}$	0.13	-0.13	0.016	0.123
8	$E_8=\frac{8\times52}{60}$	6.93	1.07	1.144	0.165
0	$E_0=\frac{8\times7}{60}$	0.93	-0.93	0.864	0.929
0	$E_0=\frac{10\times1}{60}$	0.16	-0.16	0.025	0.156
10	$E_{10}=\frac{10\times52}{60}$	8.66	1.34	1.795	0.207
0	$E_0=\frac{10\times7}{60}$	1.16	-1.16	1.345	1.159
1	$E_0=\frac{22\times1}{60}$	0.36	0.64	0.409	1.136
18	$E_{18}=\frac{22\times52}{60}$	19.0	-1	1	0.052
3	$E_3=\frac{22\times7}{60}$	2.56	0.44	0.193	0.075
0	$E_0=\frac{18\times1}{60}$	0.3	-0.3	0.09	0.3
14	$E_{14}=\frac{18\times52}{60}$	15.6	-1.6	2.56	0.164
4	$E_4=\frac{18s\times7}{60}$	2.1	1.9	3.61	1.719
Σx^2					6.452

ANNEXURE II-11

Chi Square test analysis between the pretest level of social anxiety and educational level of mothers among adolescents

Educational level of mothers	Mild	Moderate	Severe	TOTAL
Illiterate	0	3	0	3
Primary school	0	5	0	5
High school	0	18	2	20
Higher secondary	0	12	2	14
Graduate	1	14	3	18
TOTAL	1	52	7	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**O – E**	**$(O-E)^2$**	**$\frac{[(O-E)]^2}{E}$**
0	$E_0=\frac{3\times1}{60}$	0.05	-0.05	0.002	0.04
3	$E_3=\frac{3\times52}{60}$	2.6	0.4	0.16	0.06
0	$E_0=\frac{3\times7}{60}$	0.35	-0.35	0.122	0.348
0	$E_0=\frac{5\times1}{60}$	0.08	-0.08	0.006	0.075
5	$E_5=\frac{5\times52}{60}$	4.33	0.67	0.448	0.103
0	$E_0=\frac{5\times7}{60}$	0.58	-0.58	0.336	0.579
0	$E_0=\frac{20\times1}{60}$	0.33	-0.33	0.108	0.327
18	$E_{18}=\frac{20\times52}{60}$	17.3	0.7	0.49	0.028
2	$E_2=\frac{20\times7}{60}$	2.33	-0.33	0.108	0.046
0	$E_0=\frac{14\times1}{60}$	0.23	-0.23	0.052	0.226
12	$E_{12}=\frac{14\times52}{60}$	12.1	-0.1	0.01	0.000
2	$E_2=\frac{14\times7}{60}$	1.63	0.37	0.136	0.083
1	$E_1=\frac{18\times1}{60}$	0.3	0.7	0.49	1.633
15	$E_{15}=\frac{18\times52}{60}$	15.6	-0.6	0.36	0.023
3	$E_3=\frac{18s\times7}{60}$	2.1s	0.9	0.81	0.385
Σx^2					3.956

ANNEXURE II-12

Chi Square test analysis between the pretest level of social anxiety and fathers occupational status among adolescents

Fathers occupational status	Mild	Moderate	Severe	TOTAL
Government Service	0	6	1	7
Private Service	0	12	4	16
Business	1	33	2	36
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
0	$E_0=\frac{7\times1}{60}$	0.11	-0.11	0.012	0.109
6	$E_6=\frac{7\times52}{60}$	6.06	-0.06	0.003	0.000
1	$E_1=\frac{7\times7}{60}$	0.81	0.19	0.036	0.044
0	$E_0=\frac{16\times1}{60}$	0.26	-0.26	0.067	0.257
12	$E_{12}=\frac{16\times52}{60}$	13.8	-1.8	3.24	0.234
4	$E_0=\frac{16\times7}{60}$	1.86	2.14	4.579	2.462
1	$E_1=\frac{31\times1}{60}$	0.51	0.49	0.240	0.470
29	$E_{29}=\frac{31\times52}{60}$	26.8	2.2	4.84	0.180
1	$E_1=\frac{31\times7}{60}$	3.61	-2.61	6.812	1.887
0	$E_0=\frac{6\times1}{60}$	0.1	-0.1	0.01	0.1
5	$E_5=\frac{6\times52}{60}$	5.2	-0.2	0.04	0.007
1	$E_1=\frac{6\times7}{60}$	0.7	0.3	0.09	0.128
Σx^2					5.878

ANNEXURE II-13

Chi Square test analysis between the pretest level of social anxiety and mothers occupational status among adolescents

Mothers occupational status	Mild	Moderate	Severe	TOTAL
House wife	1	38	4	43
Government Service	0	2	0	2
Private Service	0	9	3	12
Business	0	2	0	2
Coolie	0	1	0	1
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
1	$E_1=\frac{43\times1}{60}$	0.71	0.29	0.084	0.118
38	$E_{38}=\frac{43\times52}{60}$	37.2	0.8	0.64	0.172
4	$E_4=\frac{43\times7}{60}$	5.01	-1.01	1.020	0.203
0	$E_0=\frac{2\times1}{60}$	0.03	-0.03	0.000	0
2	$E_2=\frac{2\times52}{60}$	1.73	0.27	0.072	0.042
0	$E_0=\frac{2\times7}{60}$	0.23	-0.23	0.052	0.226
0	$E_0=\frac{12\times1}{60}$	0.2	-0.2	0.04	0.2
9	$E_9=\frac{12\times52}{60}$	10.4	-1.4	1.96	0.188
3	$E_3=\frac{12\times7}{60}$	1.4	1.6	2.56	1.828
0	$E_0=\frac{1\times1}{60}$	0.01	-0.01	0.000	0
1	$E_1=\frac{1\times52}{60}$	0.86	0.14	0.019	0.022
0	$E_0=\frac{1\times7}{60}$	0.11	-0.11	0.012	0.109
0	$E_0=\frac{2\times1}{60}$	0.03	-0.03	0.000	0
2	$E_2=\frac{2\times52}{60}$	1.73	0.27	0.072	0.042
0	$E_0=\frac{2\times7}{60}$	0.23	-0.23	0.052	0.226
Σx^2					3.376

ANNEXURE II-14

Chi Square test analysis between the pretest level of social anxiety and extracurricular activities of adolescents

Extracurricular activities	Mild	Moderate	Severe	TOTAL
Sports	1	28	6	35
Arts/Handicraft	0	16	0	16
Nil	0	8	1	9
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
1	$E_1=\frac{35\times1}{60}$	0.58	0.42	0.176	0.304
28	$E_{28}=\frac{35\times52}{60}$	30.3	-2.3	5.29	0.174
6	$E_6=\frac{35\times7}{60}$	4.08	1.92	3.686	0.903
0	$E_0=\frac{16\times1}{60}$	0.26	-0.26	0.067	0.257
16	$E_{16}=\frac{16\times52}{60}$	13.8	2.2	4.84	0.350
0	$E_0=\frac{16\times7}{60}$	1.86	-1.86	3.459	1.859
0	$E_0=\frac{9\times1}{60}$	0.15	-0.15	0.022	0.146
8	$E_8=\frac{9\times52}{60}$	7.8	0.2	0.04	0.005
1	$E_0=\frac{9\times7}{60}$	1.05	-0.05	0.002	0.001
Σx^2					3.999

ANNEXURE II-15

Chi Square test analysis between the pretest level of social anxiety and Relaxation techniques followed by adolescents

Relaxation techniques	Mild	Moderate	Severe	TOTAL
Games	0	19	2	21
Music	0	21	3	24
Meditation	1	5	0	6
Yoga	0	7	2	9
TOTAL	1	52	7	60

O	$E=\frac{RT\times CT}{N}$	E	O – E	$(O-E)^2$	$\frac{[(O-E)]^2}{E}$
0	$E_0=\frac{21\times1}{60}$	0.35	-0.35	0.122	0.348
19	$E_{19}=\frac{21\times52}{60}$	18.2	0.8	0.64	0.035
2	$E_2=\frac{21\times7}{60}$	2.45	-0.45	0.202	0.082
0	$E_0=\frac{24\times1}{60}$	0.4	-0.4	0.16	0.4
21	$E_{21}=\frac{24\times52}{60}$	20.8	0.2	0.04	0.001
3	$E_3=\frac{24\times7}{60}$	2.8	0.2	0.04	0.014
1	$E_1=\frac{6\times1}{60}$	0.1	0.9	0.81	8.1
5	$E_5=\frac{6\times52}{60}$	5.2	-0.2	0.04	0.076
0	$E_0=\frac{6\times7}{60}$	0.7	-0.7	0.49	0.7
0	$E_0=\frac{9\times7}{60}$	0.15	-0.15	0.022	0.146
7	$E_7=\frac{9\times7}{60}$	7.8	-0.8	0.64	0.082
2	$E_2=\frac{9\times7}{60}$	1.05	0.95	0.902	0.859
Σx^2					10.843